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The Practical Farmer

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Police Protection for Rural Districts

THERE has lately developed in neighboring states such a widespread interest in the question of rural police protection that The Practical Farmer has secured the following authentic account of the activities of the Pennsylvania State Police, and also some suggestions as to ways in which it might be possible to increase its efficiency.

Unfortunately, the most sensational service of the State Police, and the one which has given it the greatest publicity, has been checking riots caused by strikes or other industrial disturbances, but as a matter of fact, only about 1 per cent. of the three thousand or more arrests made each year for eighty different classes of crime, are the result of labor disturbances, and by far the greatest benefit derived from the force has been the protection afforded rural communities and the prevention of crime in country districts.

The Department of State Police and the State Police Force, was created by an act of the Pennsylvania Legislature in 1905, which act provided for a force of 8 officers and 220 privates, and the members of the force "were empowered to act as forest, fire, game and fish wardens," and "wherever possible to co-operate with local authorities in detecting crime, apprehending criminals and preserving law and order throughout the state."

The 228 officers and men provided by law having been selected from more than 1000 applicants after a careful mental and physical examination and a thorough investigation of their characters, morals and past records, were divided into four troops of two officers and 55 men each, and located in Pottsville and Wyoming in the eastern end of the state, Butler and Greensburg in the western end. Daily mounted patrols from each troop now cover the roads within a radius of 25 or 30 miles of the home stations and afford protection to residents within that radius.

In order to afford all protection possible to communities more distant from the barracks, each year from 45 to 50 sub-stations, consisting of three men each, are established throughout the different counties and are kept out as long as the appropriation available for this purpose lasts. Two men from each of these sub-stations daily patrol the roads within a radius of about 25 miles, leaving the third man on duty at the station ready to answer any call for assistance in the immediate neighborhood

During 1915 a total of 3027 arrests for over 80 different crimes were made by the force. Only 32 of these were for rioting, while 268 arrests were made for larceny, 97 violations of game and fish laws, 48 burglary, 43 gambling, 42 murder, 38 rape, 26 fornication and bastardy, 18 highway robbery and 11 horse stealing. From these 3027 arrests 2348 convictions were secured, which is an average of 80 per cent. of convictions for all arrests during the year; 95 per cent. of these arrests were for crimes committed in the rural districts.

In judging the efficiency of a police force it is not the number of arrests that counts, but the proportion of convictions to arrests. The reason this percentage is so large is because the members of the force do not make arrests without cause, and after making arrests, from their schooling in the criminal laws of the state, they know just what evidence is necessary and they can present it in the proper manner to the justice of the peace or to the judge of the court.

Before the establishment of the State Police there were thousands of acres of farming land where a uniformed officer had never been seen. The country roads were unpatrolled and large groups of settlements which had sprung up all through the state had no police protection. During the past year alone the members of the force traveled 667,882 miles in the discharge of their duty and protecting life and property in the rural districts. In the ten years of its existence the force has covered 4,627,111 miles and made over 20,000 arrests. While on patrol the officers maintain law and order in their districts, render assistance upon the request of any citizen, investigate and report on crimes that have been committed, enforce the game, fish and forestry laws and occasionally assist the Department of Health in maintaining a quarantine during an epidemic of some contagious disease.

Pennsylvania State Police. Type of Men, Horses and Equipment of this Efficient Force.

It is impossible to show in figures the amount of good which this policing accomplishes, but it should not be overlooked in this connection that 70 per cent. of those arrested are foreigners. The moral effect of the presence of the State Police upon such a class of people is too well known to require description here. It is also impossible to state just how many thousands of dollars worth of fruit, chickens and farm produce have been saved to the farmer, nor can the feeling of safety which is in the minds of thousands of farm women, due to the presence of the State Police, ever be expressed in figures.

One of the strongest features of the organization of the force has been that politics or personal interest have never had any influence. All promotions have been made from the ranks, for merit alone, after a strict competitive examination. New men are only enlisted as privates after a careful examination as to their mental, physical and moral qualifications.

A training school is maintained at the Pottsville barracks, where all recruits are sent for four months. During this time they receive daily instruction from the troop commander in the duties of a state policeman, the criminal, game, fish and forestry laws and the care of horses, equipment, etc. They are also drilled daily, both mounted and dismounted, and are given constant target practice. If the men show sufficient efficiency after this probation period they are assigned to a permanent station, but during all their term of service are always required once a week to attend the school conducted by the troop commander for additional instructions in the laws of the Commonwealth, detective and general police work.

If a man is once dismissed from the force he is never allowed to re-enlist and no influence can either get an undesirable man on, keep a man on who has proven himself unfit, or have a man reinstated who has once been discharged.

The salaries of the men are at the present time too low, but as they were established by law in 1911 they cannot be changed without legislative enactment. The pay for a private is $75 per month for the first two years, $80 per month for the second two years and $85 per month after four years service. When one considers the fact that these men are constantly risking their lives (and it might be well to mention that in the ten years of work ten of them have been killed and 35 seriously wounded in the performance of their duties) and that they are required to board themselves, it is a wonder that it has been possible to maintain a force at all.

During the past two years the search by the munition manufacturers for men to organize and direct their police organizations has clearly demonstrated the small pay weakness. They are looking for men who have been trained in a knowledge of criminal law and discipline and who have developed initiative and executive ability. By paying salaries ranging from $90 to $150 per month they have taken a good many of the best men. The result is that the state loses not only an efficient officer, but also loses the time and expense which has been invested in the man in making him valuable as a state policeman.

Exclusive of Philadelphia and Allegheny counties, there are 65 large counties in the state having a total area of 45,000 square miles and a population of approximately five and one-half million people, and it is impossible for the 220 men now comprising the force to properly patrol this vast territory. If 200 men were added to the force and the annual appropriation for contingent expenses increased from $85,250

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.

EDITORS

THOS. H. WITTKORN W. F. MASSEY W. H. TOMHAVE
A. E. GRANTHAM CHARLES A. McCUE
F. V. L. TURNER J. H. REED
EDWARD T. WALKER, Managing Editor

SPECIAL REPRESENTATIVES

J. C. Billingslea, 119-123 W. Madison St., Chicago.
708 Kresge Bldg., Detroit, Mich.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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JANUARY 1, 1917

Our Annual Poultry Number

IT has been our custom for several years past to have each winter a special Poultry Number—an issue in which strong emphasis is put on this branch of farming, and in which we ask our readers to give us and, through us, their brother farmers, the benefit of their experience in profitable poultry raising on the farm. This year our annual Poultry Number will be the issue of *February 15th.*

For this issue we invite any and all of our readers to write us articles concerning their personal experiences in any detail of poultry husbandry on which they feel that these experiences may be of value to others. Among the many subjects open for discussion we might suggest plans and the building of poultry houses, poultry house sanitation, the breeding and raising of chickens, ducks, geese, turkeys and guinea fowls, the use of incubators, the raising and sale of day-old chicks, etc.; there are a host of points which may be taken up in these articles, but our suggestion is, that each contributor devote his article to some one particular phase of the subject, giving his particular experience therein, with the figures of expense, the profits realized, etc.

From the articles contributed we will select four for publication in the February 15th issue and for these four articles will award prizes as follows:

For the best article $15.00.
For the second best article $10.00.
For the third best article $8.00.
For the fourth best article $5.00.

We do not purpose to limit our contributors to the number of words in their articles, but would suggest that, as "brevity is the soul of wit," the article which tells its complete story in the most direct and readable manner will naturally be the best in point of length; tell all of your story, giving all details that are necessary, but don't "ramble"—stick to your subject and pack into the article as much valuable information as possible, at the same time making it a readable contribution and not a mere table of statistics. A great deal of information can be put into from 1000 to 1500 words.

Your contributions for the Poultry Number should reach us by January 25th at the latest—and as much before that date as possible. It takes time to properly read and judge the contributions in a contest of this sort, and you will favor us by giving us just as much time as possible in which to properly take care of your contribution.

With the unusually good prices prevailing for poultry and eggs this season, this Poultry Number should have an unusual interest Many of our farmers are going more heavily into poultry investments than ever before and are seeking the fullest information on every phase of the industry. It is up to you, our readers, to help us give this information, and thus benefit the industry as a whole. We will do our best to make this the best Poultry Number yet—will you help us?

Address contributions for this contest to The Poultry Editor, The Practical Farmer, Philadelphia.

Figure More—Make More

ANOTHER year has gone and a new one stands ready with its vast opportunities. Time to the primitive savage was of no value, but the higher man stands in civilization the more valuable time becomes. We farmers have not been accustomed to place a value on our time and that of our families in conducting our business. Industrial conditions have become such, however, that time will be more valuable on the farm this year than in the past, and it will pay well to study how to make the best use of it. The old saying "to plan your work, then work your plan" holds as true for farming as any other occupation. Winter is the time to make plans, and the man who uses this time to work his head will find that when spring comes he will not have to work his hands quite so hard. True, things will not always work out as planned, because of weather and other unforeseen conditions, but without a plan these same conditions would cause greater confusion. Having work planned well ahead will tend to a more systematic and economic purchasing of supplies. These will then be on hand when needed.

It has been said that if lead pencils were uncommon things there would be golden opportunities for slick-tongued salesmen to sell them at a substantial profit on the strength of the amount of money which could be saved by their use. This was never more true than it is today when everything is so high in price. A lead pencil judiciously used will show which crops last year returned the most for the labor put upon them. Such information would be valuable in planning this year's work. Lead pencils have been known to save years of time which was being spent in milking unprofitable cows. A little figuring might show where the purchase of a new machine would more than save its cost in time saved during the rush of a busy season. Before the lead pencil idea is capitalized why not start of your own accord to ascertain just how things are going and where savings of time and money could be made?

A New Grange Activity

THE action taken by the Pennsylvania State Grange at its recent meeting to establish a publicity bureau at Harrisburg, the state capital, is a good one and ought to meet with the approval of all farming interests. For too long the farmer has not exerted his real strength on legislative matters, but has taken most any and everything which his representatives have, with the ready assistance of city representatives, thought right to impose upon him. The National Dairy Union has successfully established a bureau at Washington, D. C., which looks after national legislation affecting the dairy industry, and there ought to be no reason why the farming interests of a great commonwealth like Pennsylvania should not be as closely guarded.

This work naturally costs money and requires a responsible organization back of it. The State Grange can fill these two requirements better than anybody else, and the experiences along this line of the men now at the head of this organization will prove valuable. The efforts which they make will be watched with a great deal of interest and the good which is likely to result from this work is beyond measuring and can readily grow into the greatest work ever accomplished by the State Grange.

Dairying and Dividends

BANKERS, as a class, have long looked upon dairying with favor, and considered dairymen good risks for loans. In the Northwest the great drift has been all to wheat, in the South all to cotton, and in the corn belt all to corn, making an unstable agriculture and one which did not work for a permanent development. The country banker is interested in the business of country people more than he is usually given credit for, but it is no doubt a fact that his service, when honestly and conscientiously rendered, has done much to advance agriculture. It has not always been a purely philanthropic effort, but the results accruing to the community have far overbalanced any which the banks may have received.

One of the most striking examples of this kind is the Bank Calf Clubs in Illinois, by means of which five hundred boys and girls are now the proud possessors of first-class dairy stock. Eight banks last year conducted these clubs in an effort to expand the dairy industry of the state. These banks, with the co-operation of W. Scott Matthews, Dairy and Food Commissioner, secured in Wisconsin and other producing centers the best grade heifers obtainable. These were allotted to applicants by drawing lots, and payments for them were secured by notes signed by the parents of the children, payable in one year with six per cent. interest. Only the actual cost price of the heifers, from forty to fifty dollars, was charged for them. These notes were signed with the distinct understanding that the calves were to be the property of the children and were, as far as possible, to have their direct care and management. This method not only stimulated a general interest in dairying, but encouraged ideas of thrift and business management. The entire community became interested in the progress of the clubs. Neighbors for miles around came to see the calves and were interested in their growth.

The Pennsylvania Bankers' Association recently offered four scholarships of the value of twenty-five dollars each for dairying work in the winter short courses at Pennsylvania State College.

Bankers know that these are methods which tend to build up a diversified farming in the community. When farmers keep the better classes of live stock it just comes natural to build silos and creameries and introduce modern tools and appliances. As such stock, equipment and appliances are highly productive, bringing an immediate and increasing return, they become excellent security for merchants or bankers. The farmers of the United States now receive more than five million dollars annually for their dairy products, and the real development of this business has only just begun.

Annual Exchange of Ideas

THIS is the season of the annual farmers' institutes throughout the United States. Every trade and profession has its annual convention, so why should not the farmers come together once a year for the exchange of ideas? All that is learned at meetings of this kind is not derived from the scheduled speeches, no matter how able the lecturers are. Every farmer has made some discoveries of his own and it is only by talking matters over together that progress can be made by a community. The lecturers themselves very often learn a lot from the audience and are enabled in traveling from place to place to carry the helpful ideas of one man to many others. By having a local man assigned to discuss for a few minutes the points brought out in each lecture valuable features are often developed which would otherwise have been lost.

Records appear to show that in the counties where farming conditions are best developed the annual institutes are the best attended and greatest interest taken. Lancaster county, Pennsylvania, long noted for its high rank in agriculture, has found that a display of farm products and women's handiwork in connection with the institutes is a great help in arousing and maintaining interest. A local committee is appointed some time in advance of the meetings and they collect and arrange as many products as possible. The institute speakers act as judges in awarding ribbons for the different entries.

The institute which overlooks the farm women and the part which they take in working out the problems of the country has not reached its highest success. In many places one session is set apart for the discussion of home problems and a woman lecturer provided. The school and educational features also find places in a program which looks farther ahead than a merely "producing more" policy.

In Ohio this year, where they are having more than four hundred farmers' institutes, emphasis is being placed on the establishment of water supply and sewage disposal systems and on the development of rural community life. Counties which now have extension agents working in them under the direction of the state colleges ought to be able to develop these annual meetings to the highest degree. All the results, however, rest on the attitude taken by the people for whom the meetings are intended. If they will not attend the meetings they will never be a success. Doctors, engineers, salesmen, manufacturers and other professional and business men never consider it a waste of time or below their dignity to sit in a meeting which has for its object a better understanding of their chosen vocations.

Grange Doings in this Section

PENNSYLVANIA.

The forty-fourth annual session of the Pennsylvania State Grange was held in Philadelphian, December 13, 14 and 15. Two progressive and far-reaching actions taken at that time were instructions given to the executive committee to establish a Grange bureau at Harrisburg during the sessions of the coming legislature and the formation of a mutual casualty insurance company. The Grange has established successful fire and life insurance associations, and under the present plan will now receive the benefits of a mutual casualty company.

All sessions of the meeting were well attended. Philadelphia is surrounded by a strong Grange territory and lots of visitors attended the convention. More than 800 official delegates cast ballots for officers at the biennial election held this year.

At the evening meeting the first day, the mayor of the city and other municipal officers made short addresses which were responded to by Grange officials.

On Wednesday afternoon the officers of Pomona Grange No.—3 of Delaware and Chester counties gave the fifth degree in full form to a class of 175 candidates. Past-Master Rhone, of Center Hall, who has seen this work given in many states and all over this state, says that never before did he see it so well done. The vivid electrical storm, break of day and court scenes were given, as well as 30 pretty women could with the assistance of a lot of grand opera scenery, a large stage and a corps of trained electricians and stage hands. At the evening session the sixth degree was conferred on a class of 475.

At the biennial election of officers John McSparran was re-elected master without opposition. Other officers elected were: Frank N. Moore, Bradford Co., overseer; Rev. H. G. Teagarden, Jefferson Co., lecturer; John K. Campbell, Tioga Co., steward; Rev. G. W. Hatch, Clearfield Co., chaplain; F. P. Willits, Delaware Co., treasurer; Mrs. Nettie E. Allman, Centre Co., secretary.

The salary of the master was raised this year from $800 to $1200 per annum. There was a strong feeling that this should be $1500; but on account of the added expense which the new bureau at Harrisburg will add to the organization, and for fear that the office would be sought after in future years for its salary rather than honor, it was finally decided to give the master $1200.

For some time various metropolitan newspapers and other agencies have been blaming the farmers for the high cost of living, A committee was appointed by the State Grange to make investigation of this work and show that the farmers were not responsible for conditions as they exist.

A municipal milk distribution system which would also serve for eggs and all dairy products, was urged by the worthy master in his annual report. Gifford Pinchot, who has been working for some time on a study of these conditions, appeared before the Grange and urged the appointment of an investigating committee.

The State Grange also decided that it would not be to their advantage to become in any way affiliated with the State Chamber of Commerce, recently organized in Harrisburg. A resolution to this effect stated "it is important that the Grange, in carrying out its obligation as spokesman for the farmers, should make no alliances that might in any way deter or embarrass it in its work." In matters of legislation, it was stated, the Grange has its own legislative committee, "which is awake to the needs of the farmer."

W. G. F. Gaunt, New Jersey state master, Dean R. L. Watts, of State College, and Miss Pearl McDonald representing the extension department of the college, made short addresses during the session.

Resolutions were passed favoring increased appropriations for research work at State College and for use of farmers' institutes, but ones favoring a reorganization of the State Department of Agriculture similar to the plan now used in New Jersey, and placing the administration of farmers' institutes under the direction of State College, were defeated.

Resolutions were also passed favoring a state graduated inheritance tax, universal peace and state and national prohibition. The proposed food embargo and the recent Adamson eight-hour law were declared unfair and harmful to the interests of country people.

The report made by the manager of the Keystone Grange Exchange, the co-operative buying and selling organization of the State Grange, showed that they did a business last year of $248,000 dollars. This was done with an office expense of only $1800, and saved Patrons hundreds of dollars on their purchases of fertilizers, groceries, merchandise, etc.

Report of the state treasurer, F. P. Willetts, showed the organization to be in excellent financial condition. Receipts for the year were $22,000, and exceeded the expenditures by nearly $5000.

Morris Lloyd, the editor and manager of Grange News, the official monthly paper, reported that the publication was in good financial condition. This was gratifying, because for a number of years this was an expense to the state organization, but it has always been a great aid in building up the membership and keeping interest alive.

A resolution introduced by Lycoming County Pomona favored Williamsport as the place for the next annual meeting. This was referred to the executive committee and they will investigate the facilities which this city has for taking care of such a large gathering.

DELAWARE.

The Delaware State Grange met in Dover, December 12 to 14, with nearly every subordinate Grange in the state represented, as well as the three county Granges.

The reports of officers were brief but comprehensive and to the point, and very little time was wasted in useless discussion. The reports of the committees were timely and covered the principal questions relating to the civic and moral welfare of the state.

The Grange is strongly in favor of an improved system of county government, including the assessment and collection of taxes. This work is now done by an assessor and collector in each small district. It is proposed to have it done on the county basis. For nearly a hundred years real estate has been taxed on its rental value and personal property on its face value for school purposes. The amount received in this way, however, is small, the state contributing largely to the support of all the schools. The Grange is in favor of making the school tax heavier and assessing it on real and personal property alike.

It adopted a resolution in favor of statewide prohibition and is unanimously in favor of a law to prevent the shipment of intoxicating liquors from wet territory into dry, so long as any part of the state has a licensed system.

Th Grange is strongly behind Delaware College and Experiment Station and will give it the strongest kind of support and also the extension work carried on by the county agents.

The newly elected officers are as follows: Worthy master, Horace L. Dilworth, Wilmington; overseer, J. H. Rosa, Milford; lecturer, W. H. McCoy, New Castle; steward, Jeff Cooper, Cheswold; assistant steward, R. H. Wilson, Dover; chaplain, W. D. Wilson, Lewes; treasurer, Charles Barker, Milford; secretary, Wesley Webb, Dover; gate keeper, J. P. Kelley, Ellendale; ceres, Evelyn M. Killen, Felton; pomona, Willa M. McAllen, Bridgeville; flora, Mrs. H. L. Dilworth, Wilmington, and lady assitant steward, Sadie T. Wilson, Dover.

Executive committee: H. L. Dilworth, and Wesley Webb, ex-officio, Hervy Walker, J. H. Rosa and John Ponder.

NEW JERSEY.

The 44th annual session of the State Grange of New Jersey was held at Atlantic City, December 5th to 7th. The first afternoon session was taken up with the officers' reports, and in the evening an address of welcome was delivered by Emerson L. Richards, senator-elect from Atlantic county. Response was made by Worthy Master G. W. F. Gaunt. Mr. Veighman, president of the State Chamber of Commerce, gave an excellent talk upon the working of the State Chamber and its benefits to the State Grange along legislative lines.

The lecturers' conferences were well attended and much interest manifested.

At the election of officers on Wednesday Hon. Gaunt was re-elected master, also John T. Cox re-elected secretary.

Resolutions were introduced and finally adopted favoring the repeal of the teachers' tenure of office act; opposing military training in the public schools; that rural schools be improved, rather than closed or consolidated; the formation of dairymen's leagues throughout the state; opposing an embargo on foodstuffs; favoring Philadelphia and Camden bridge over the Delaware river; favoring a direct road tax for the building of a system of roads which would be a credit and a benefit to the state, rather than that provided by the Egan law; favoring the repeal of the "full crew" railroad law, and favoring the reintroduction of the local option law.

The degree of Flora was conferred on a class of 108 candidates.

On Thursday evening the officers were installed and the A. W. imparted for 1917. Worthy Master Adams and his wife, of the New Hampshire State Grange, Worthy Master Chapman, of the Massachusetts State Grange, U. S. senator-elect of New Jersey, the Hon. J. S. Frelinghuysen, were among the visitors, and gave good Grange talks. It was one of the best and most interesting sessions ever held in New Jersey.

NEW YORK.

The annual meeting of the New York State Grange will be held at Oneonta, February 6 to 9. On account of the large membership in the state, now nearly 120,000, delegates to the state meeting are chosen by the Pomona Granges at their December meetings on the basis of the number of members in each county. It is expected that there will be 335 delegates with their wives or husbands at the meeting this year, representing the 994 Granges in the state. The delegates are not only paid their mileage, but a per diem amount for attending each session, which is indicated by punches made in a card by the steward as they enter for each meeting.

There are a number of state problems affecting the farmers at the present time regarding which the Grange is devoting considerable time and thought. They have a special committee studying and developing a new system of management of rural schools, they supported the Dairyman's League in their recent agitation of a better price for milk, and are backing the National Dairy Union in regard to oleomargarine legislation. One large task which they will attempt this winter is to try to get the State Agricultural Department out of politics and on a solid basis as a permanent board of agriculture. The question of a state constabulary or rural police similar to the force now in Pennsylvania, is a live one with the Grange members and will be fully discussed at the coming meeting. Last year was the bi-ennial election of officers, so that the present ones still have another year to serve.

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THE GARDEN

Edited by W. F. MASSEY

All articles for, or questions relating to this department should be addressed "The Garden," The Practical Farmer, Philadelphia, Pa.

A Small Greenhouse

Market gardeners especially, and gardeners in general, will find that a small greenhouse is the most useful thing in the garden. It saves the trouble and labor of making hotbeds, and stooping over them in the cold weather. The early cabbage plants can be started in a greenhouse in flats or shallow boxes and transplanted to the cold frames for hardening, and the onion plants, too, can be started in the house in January and gotten into shape for transplanting later. Of course, the tomato and eggplants and peppers can be started there, and it is far more convenient to work in a comfortable house than over the hotbeds outdoors. I long ago abandoned the making of hotbeds, and use the greenhouse instead. My greenhouse is a lean-to in the rear of my office, and only a few steps from my desk. In the cellar under the office is a small cylinder hot-water boiler; part of the pipes from this are in the office and a coil under the table in the greenhouse. This little boiler and piping, which cost $30 in Chicago, heats both office and greenhouse except in extra cold weather, when I put some fire in the office grate.

The greenhouse not only answers for the starting of the garden plants, both of flowers and vegetables, but gives me some flowers during the winter from bulbs of hyacinths, narcissus and tulips, and in summer I use it for blooming the tuberous begonias and gloxinias in pots.

Then under the bench I have plenty of room to pack some large roots of rhubarb and force a supply of fresh stalks. This, of course, means the keeping up of a supply of roots in the garden, for the forced roots are no longer of value. Still, for keeping one out of the necessity of making hotbeds the greenhouse is worth all it cost.

Broad Windsor Beans

These are very popular vegetables in England, but have not been grown much in this country because they will not stand hot weather. They are fully as hardy as English peas. In North Carolina I have planted them in January and they came up along with the early peas sown at same time, and when shelled green they make a very nice dish. I have had them frosted well when in bloom, but it did not seem to do them any harm. But with the first warm weather they are done.

Growing Spanish Onions

The onions of the Spanish varieties, such as Prizetaker, Giant Gibraltar and Denia, can be sown thinly in rows in a well banked cold frame the latter part of the month of January, and will make nice plants for transplanting in late March or early April after being gradually hardened. This class of onions is the best for the transplanting method. But the Bermuda onions can be treated in the same way.

Succession Cabbages

The latter part of January prepare a slight hotbed for sowing seed of the Copenhagen Market cabbage to make plants to succeed the Early Jersey Wakefield grown from fall sown seed. Then by the time the heat has run down and the hotbed is really a cold frame the cabbage plants can be gradually hardened off so that they can be set early in April or here in March. This variety of cabbage makes fine heads, but will not succeed from fall-sown seed, as they will invariably run to seed if sown in the fall. But sown early under glass they will come in very nicely after the Early Wakefield and will make much larger heads.

Getting Early Beets

With the double glazed sashes and a well banked frame on the outside, beet seed can now be sown in rows 12 inches apart. Here I sow alternate rows of early radishes and beets 6 inches apart, and the radishes will come out before the beets need the room. After the beets get into the rough leaf it will not matter much if some frost gets in, and in late March they can be hardened off and the sashes used on other frames, or if the small portable frames are used the whole frame can be moved to another place for setting tomato plants that have been started in hotbed or greenhouse.

Tomatoes

As usual, the seedsmen will be offering new tomatoes and claiming them to be the earliest ever. I believe that we have reached the limit in earliness in the tomato, and while there may be new ones introduced that have especially good qualities, we will never get any earlier than Earliana and Bonny Best. Still, I always test the new ones lightly and try to find out what they are worth. For the earliest I sow some seed in shallow boxes in the greenhouse the last of January. Transplant them to other boxes as soon as large enough to handle and then set them in 2½-inch pots and keep them in these until the little pots are perfectly crowded with roots, and the plants somewhat stunted. Then in March they are set in a cold frame 4 inches apart each way, and are exposed to the air whenever it is favorable, so that I get them tough and strong with stems of purple color instead of green. I can then set them out in mid-April here and protect them with plant covers if frost threatens. In this way I get the first ripe tomatoes from 10th to 12th of June. Of course, this is a lot of trouble, but one always likes to get ahead of his neighbors with these things.

Manure for the Garden

I find that the best way to get manure in proper condition is to spread it thickly all over the garden in the late fall and let it lie there all winter as a mulch to the land and a protection to the winter crops. By spring it has decayed enough to feed the crops. If this has not been done, the best way is to pile the manure and as soon as it heats turn over and repile. Do this until it is well rotted, for fresh manure applied in the spring must go through the rotting process, or nitrification, in order that plants can use it, and applied perfectly fresh it may do more harm than good to many vegetables.

Bedding Begonias

In January, too, I sow in the greenhouse seed of the everblooming begonias like Vulcan and Vernon, for bedding out in summer. The dust-like seeds are thinly scattered on the surface of a box of moist soil, and a pane of glass laid over it to prevent drying out. The little plants soon appear and when large enough are potted in the 2½-inch pots. These are here our substitute for the scarlet geraniums that are bedded out in the North, but are worthless here. The begonias do not mind the hot sun and are a mass of bloom all summer through, and some of them can be taken up for blooming all winter in the house. Of course they can be easily grown from cuttings, but I get them more rapidly from seed.

The Bulb Beds

The beds of hyacinths, tulips and narcissus should have had a thick coat of manure on them in the fall. If not done, then lose no time now in applying it. The seepage of the manure will help them very much and the rough, strawy part should be raked off in the spring when the bulbs begin to show through.

Sweet Peas

I make two sowings of sweet peas, the first in November and the second in January. It is necessary to get these in bloom before hot weather. I make rather deep furrows and put some rotten manure in the bottom, cover it lightly and plant the seed thinly in rows. Then cover about 5 inches deep. The fall-sown ones will often get up before Christmas, but being very hardy they are not hurt by freezing, and they come in bloom ahead of the January sowing, which makes a succession of bloom. I have often had volunteer sweet peas start early in the fall, and winter well. I once knew a florist to sow some in early September expecting to get some fall flowers. The plants grew off finely but did not bloom before frost, and he supposed that the experiment was a failure. But to his surprise the plants lived over the winter and were the first ones in bloom.

Cannas from Seed

Last summer I got some seed from the finest cannas and sowed them in late November. These hard seeds are slow to grow if kept dry all winter, but sown in the fall they are kept moist and grow off in the spring easily. If kept dry all winter it is necessary to grind or file the seeds until the white shows through and then soak them in water for two days. They will then grow well. But it is far more convenient to sow them in the fall. And if the soil is still open they may yet be sown. I find, too, that here the little cormlets of the gladiolus sown 5 inches deep in the fall will grow much better than if kept dry all winter. If kept over winter they should be kept in boxes of damp sand in a cool place.

Hollyhocks

Hollyhocks are, of course, quite hardy, but I find that the young plants grown from seed sown last summer are much better with a good coat of manure as a mulch. They then come out early and grow off more strongly and bloom earlier.

Hydrangeas

Hydrangeas in cold climates can be easily wintered outdoors by bending the tops to the ground and cutting grass sods and sodding them over. I have kept Hydrangea Hortensia in this way where the mercury fell 18 degrees below zero, and they bloomed splendidly the next summer. Hydrangeas in tubs should be kept in a cool cellar and the soil not allowed to get dust dry.

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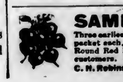

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Garden Gossip

All the garden tools should be under cover and in their proper place. Clean them well and oil them to prevent rusting. Have the dull hoes ground sharp and have all ready for the earliest spring work.

—o—

In the upper South, on sandy soils, from Virginia south, the extra early peas of the Alaska type can be sown the first good spell after New Year, and the Broad Windsor beans can be planted in rows 2 feet apart and a foot in the rows.

—o—

Here in the sunny southeastern corner of Maryland we plant early peas and beans early in February, as our light, sandy soil can be worked at any time when open. Of course, every 50 miles northward will be later, and in the latitude of Philadelphia March will answer for February here.

New Developments in Vegetable Breeding

The various kinds of vegetables will not be subject to blight, root rot or wilt provided the strains used have sufficient natural resistance in them to ward off these diseases. Too many varieties of vegetables have been advocated because of their high production regardless of their inherent strength. Mr. R. W. DeBaun, extension specialist in market gardening of the New Jersey State Agricultural College, claims that instead of advocating spraying as a general procedure, more attention should be given to the value of developing disease-resistant strains so that spraying will be less necessary.

Celery, especially the yellow varieties, are frequently destroyed by blight. Some of the leading market gardeners in north Jersey have for several years been selecting for seed purposes those plants in their fields which made the strongest growth and showed the best resistance to blight. The farm demonstrators in the organized counties are telling the growers that beans grown from a crop which had rusty pods will very probably produce a crop with rusty pods and less beans, while clean seed will usually produce a clean crop. The Agricultural Experiment Station at Madison, Wisconsin, has recently developed a strain of Danish cabbage resistant to yellows or fusarium. The Maryland Station is trying to develop a wilt-resistant tomato.

Vegetables Need Lime

Many farmers advocate the use of lime for their soils, while others say that lime has not benefited their crops. Lime costs money and requires considerable work in application, therefore the farmer should not use lime unless he is sure to get good returns for his investment.

It is a well established fact that the best yields of many of the vegetables cannot be obtained unless the soil is sweet, or alkaline. Such crops are beets, celery, onions, lettuce, spinach, peppers, cantaloupes, cabbage and others. The question that is in doubt among vegetable growers is whether their soil is actually sour, and if so, how much lime it requires to neutralize the acidity. The farm demonstrator of Cumberland Co., N. J., accompanied by the extension specialist in market gardening of the New Jersey State Agricultural College, recently took samples of soil from six different fields on a farm at Cedarville, N. J. Tests for the lime requirement of these soils gave the following results: Field 1 required 1 ton of burned lime per acre, or its equivalent, to neutralize the acidity. Field 2 showed only a trace of acidity, and would not need lime unless a crop like alfalfa were to be planted. Field 3 needed 500 pounds per acre, field 4 none, and fields 5 and 6 each 1000 pounds. The farmer himself had no idea of the condition of the soil. If he had applied lime to the fields already sweet, no benefits would have been obtained, and injury may have resulted. This illustration emphasizes the need of knowing the degree of acidity of the soil before applying lime.

Police Protection for Rural Districts

(Concluded from page 3)

to about $125,000, it would be possible to maintain sub-stations all the year around, of five men each, throughout the state. The daily patrols from these sub-stations would meet the patrols from the next nearest sub-station at the end of their respective routes, thus forming a network of patrols over the entire state. In addition to the fact that these patrols would prevent innumerable crimes, the citizens of the Commonwealth would have the State Police within call whenever assistance was needed. This should make life and property in every farming community as safe as it is in any large city.

As illustrating the way in which the force has carried out its work, a few examples of recent activities would not be amiss.

Horse stealing has long been one of the country crimes which has been hard to detect. During the past several years numerous complaints have been reported of horses being stolen in all parts of eastern Pennsylvania, and the manner in which they were secured indicated that one man was stealing horses as a business. His method was to appear in a town with a plan to begin a business which required the use of a team. Horses were thus easily secured from livery stables and farmers but they were never returned. Last September information was received at the headquarters of Troop C that a horse had been stolen in Carbon county. Two men were immediately detailed to investigate. They soon learned the direction which the thief had taken, followed him with an automobile and overtook him in the act of exchanging the stolen horse for another one. He was arrested and brought to the Schuylkill county jail. When the news of this man's apprehension became known, warrants were received for him for the same crime from Montour, Berks, Lancaster, Lycoming and other counties, as well as the state of New Jersey. It was found that all thefts in Schuylkill county had been outlawed by length of time elapsing since the crime and he was therefore turned over to the authorities of Montour county, where he will be tried, made to serve sentence and passed from county to county until he has explated his crimes.

The fact that this one horse thief was brought to justice is not all the credit which the State Police should receive on this question. It is the effect which this result has on the underworld which counts most. There is continually a number of undesirable characters kept on the move from city to city by the metropolitan police who are always on the lookout for an easy field to begin new operations. News travels among them fast, and when one man is brought to grief his fellows are not so likely to try the same tactics in a district which is sufficiently policed to make it hazardous to do so.

There have been many instances in which details from the force have assisted fire wardens and local residents in extinguishing forest fires. Last April a detail of four men from Troop B helped overcome a fire which had already burned over 20 acres and was seriously threatening a number of homes and buildings. Ten days later a detail of five men fought another fire for five hours with the assistance of farmers after it had gotten beyond their control. With the five extra men working and the directions which they could give to those already at work, the fire was extinguished.

One good feature of the State Police is that they are not hampered by county boundaries. If in following out a crime they are led into another county from where the crime is committed, they do not have to stop and wonder who will pay the expenses, as is sometimes the case where the county sheriff is following a criminal. A case of this kind happened recently when Joseph Smith, a farmer, was shot and killed at his home near Webster, and his wife brutally assaulted by an unknown negro. Sergeant McLoughlin from the force was detailed to make an investigation and found that circumstances pointed to one William Douglas having committed the crime, he being in the vicinity for some time previous, as well as on the evening of the crime, and having disappeared immediately after the murder. After Sergeant McLaughlin collected and circulated sufficient circumstantial evidence Douglass was arrested in Fairmount, W. Va. He waived extradition and Sergeant McLaughlin brought him to Greensburg, where he was identified by Mrs. Smith as her assallant and the man that shot her husband. He was tried on the charge of murder and found guilty in the first degree.

In another case a negro was followed for nearly three weeks by an officer from the force, but was finally located in South Carolina, brought back to Pennsylvania, tried and found guilty. The fact that the force has such a long arm and can reach out for wrongdoers is not forgotten by those who have a fear of such an organization.

The one objector to the State Police force is the professional labor organizer, whose very success and livelihood depends upon a continued strife between capital and labor, and his objection is that the State Police are strike breakers. As a matter of fact, the force never appears on the scene of labor disturbances until violence, often resulting in bloodshed and the destruction of property, has compelled the sheriff or district attorney of the county to declare, over his official signature, that the power of the county has been exhausted and the situation beyond his control. The State Police when sent to a scene under these conditions never take sides in the controversy; their duty is plainly defined—to enforce the law upon the public highways and maintain the peace and dignity of the Commonwealth.

The inconsistency of the labor organizer's opposition is emphatically demonstrated by the fact that on every occasion where violence has followed a strike, the organizers and leaders declare that not the union men, but the hoodlums and riffraff of the community, are responsible for the existing violence. This being true, they should welcome the State Police to protect the good name of their law-abiding union and to punish the hoodlums and criminals whom they repudiate. But as is well known, the men who themselves never soil their hands by a day's labor, but travel from place to place inventing imaginary grievances for the purpose of bringing about a condition where they may for a time be supreme, will recognize the fact that a strike robbed of its violence, is soon lost sight of in the public eye and soon dwindles down to an adjustment between employers and employes.

This is the only objection that is ever raised against the State Police and it can be safely said that for every foreign laborer or labor agitator who can bring forth the name of one person opposed to it, there can be found a thousand taxpayers, citizens, merchants and housewives who earnestly plead for a material increase in the force.

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Soils and Field Crops

Conducted by A. E. GRANTHAM

In this department will be answered questions relating to soils and their improvement, field crops and the use of lime. Questions should be addressed to the "Soils and Field Crops" department, care of The Practical Farmer, Philadelphia, Pa.

Forage Crops for the Dairy Farm

A problem on many dairy farms is to produce sufficient forage crops of the proper quality to maintain the milking animals. The dairy animal requires considerable bulky feed in addition to the concentrates, and this should be of such quality and palatability as to insure a fair rate of consumption. Silage does not take the place, entirely, of dry feed. In fact, the feeding of silage seems to whet the appetite of the cow for good hay. The profits of dairying are directly concerned in the matter of forage, since the proper kind of forage furnished by the farm may lessen materially the expense for feed. In many localities not enough attention is paid to the possibilities of growing more of these crops. In the Eastern States, particularly south of the latitude of Philadelphia, there is such a variety of plants that may be grown successfully that no farm should feel the shortage of forage during the winter. These crops vary in composition and tonnage per acre and the time required for maturity. The particular ones that should be adapted will depend somewhat upon the style of farming and the system of crop rotation.

The relative value of forage crops depends largely upon the quantity of digestible nutrients they carry. In the table below are given the number of pounds of digestible protein, carbohydrates and fats furnished by the more common forage crops used for hay:

Pounds of Digestible Nutrients in One Ton

Name of Feed	Protein	Carbohydrates	Ether Extract (Fats)	Date of Cutting
Alfalfa hay.....	220	792	44	June 1—first cutting
Red Clover hay	136	716	66	June 25
Crimson Clover hay.....	214	692	54	May 20
Soy Bean hay...	216	774	104	Aug. & Sept.
Cow Pea hay ...	116	852	44	Aug. & Sept.
Timothy hay...	56	868	28	July 15
Corn Stover.....	34	648	14	Nov.
Wheat Baan.....	244	784	54	

It will be seen from a study of the table that alfalfa, Crimson clover and soy bean hay carry nearly as much digestible protein per ton as does wheat bran. It is the protein that costs so much money when we purchase feeds. No one has yet succeeded in producing a heavy flow of milk during the winter season without furnishing protein in some form. Since there are so many crops that may be grown for hay that furnish a high percentage of protein it would seem that it would be good farm management to grow more of this class of feed. The table shows that corn stover so generally fed contains less than half as much protein as alfalfa, soy bean and Crimson clover hay. Wheat bran is often considered a standard by which other protein-carrying materials are measured, yet it is very little ahead of alfalfa hay.

Aside from the composition and digestibility of forage there must be considered the time required to grow the crop, the yield per acre and the effect on the soil, and the cost per acre or ton. No dairy farm should depend entirely upon one forage crop. In case of failure the shortage is severely felt. The fact that some of these crops may be harvested for hay as early as the latter part of May gives wide latitude in the matter of supply. For instance, Crimson clover is made into hay by June 1st, which is about the time the first cutting of alfalfa is harvested. A glance at the table will show the approximate dates of harvesting. Red clover hay is one of the best feeds that can be used for general purposes on the dairy farm. It is desirable for both the young growing stock and the milking animals. The difficulty with which Red clover is being grown in many parts of the country seems to be increasing, with the result that the crop is not so dependable. This is true especially where clover is grown alone and not with timothy. Red clover should be grown wherever possible, but there should be a second forage crop to fall back upon in case the clover fails. So much time elapses from the time Red clover is seeded until it is ready to cut that it has to undergo more chances than most crops. The tonnage of Red clover is not heavy, averaging perhaps 1 to 1½ tons per acre. Under favorable conditions a second cutting may be made the same summer. With a good crop of Red clover in the rotation there will be less difficulty in keeping up the fertility of the land. Every effort should be made to grow Red clover even if considerable dependence is placed upon some other forage crop.

Where Red clover is becoming less dependable or where an increased amount of leguminous hay is desired the soy bean may be introduced. This crop is an annual and may be matured in from 90 to 100 days. The portion of the season the soy bean occupies enables it to fit in well with most of our crop rotations. If cut for hay it is removed in time to sow wheat, thus doing away with the difficulty of removing the corn which usually precedes the wheat. Where Crimson clover does well it and the soy beans make a double crop on the same land in one season. The rotation may be as follows: First year, corn, followed by Crimson clover seeded at the last cultivation; second year, Crimson clover cut for hay and followed by soy beans, also cut for hay and seeded to wheat; third year, wheat; fourth year, Red clover. This rotation furnishes three cuttings of legume hay per year, each of which will return, on good land, 1½ tons per acre. Another advantage of this combination is that the harvesting of the three legumes is well distributed, viz., May, June and September. This rotation, however, is not adapted to regions north of Delaware, owing to the shortness of season and the difficulty of getting Crimson clover to pass the winter. If the Crimson clover is omitted the soy bean may occupy the entire season the second year.

The great advantage of soy beans as a forage crop lies in the fact that the crop may be cut for hay at any stage of maturity from the time the plant passes out of blossom until the leaves turn yellow, an interval of several weeks. In the earlier stages of maturity, when the pods begin to form, the plant carries a higher per cent. of protein, but less total weight, than when allowed to approach maturity. After the seeds or beans form the content of oil rises rapidly. The beans contain from 18 to 22 per cent. of oil, which gives the valuable laxative property to the feed. If the beans are made into hay when the seeds are nearly formed, the feed will contain as much or more protein than the best of alfalfa hay, and, in addition, sufficient oil to give the effect of feeding oil meal. Most dairymen prefer to cut the beans at a stage when both of these qualities can be secured. Occasionally the beans are threshed and then ground together with corn in order to balance the ration. The beans alone contain from 35 to 40 per cent. protein, which is about as rich as cotton seed and linseed meal. Since the beans may be cut at almost any stage of maturity for hay this enables the grower to plant later or harvest earlier, as he may desire, and this is no small item, particularly when wheat is to follow. While we generally consider alfalfa the premier forage crop, yet the soy bean is adapted to a greater range of soil conditions. Soy beans will make a good growth even on acid soil. They are an excellent crop to follow a fall-sown crop like wheat that has failed to pass the winter. Very often land that is rather cold and wet early in the season and not well adapted to the planting of corn, may be utilized for soy beans. The fact that the soy bean is planted and harvested between two frosts, that is, during one season, lessens the risks that accompany the growing of Red clover and alfalfa.

On many farms it would be found desirable to split the acreage sown to oats and grow soy beans for hay. The soy bean should not be looked upon as a direct money crop. It is one of the most valuable feeds that is raised on the farm for milk producing and growing animals. For this reason it will be well to sell the timothy hay and feed the soy beans. A ton of timothy hay removes less plant food, phosphoric acid and potash, from the soil than a ton of legume hay.

Red clover, alfalfa and soy bean hay properly supplement corn stover, as they form a more nearly balanced ration. The dairyman and stockman of the East feeds large quantities of stover which would give much larger returns with any class of stock if fed in connection with a legume hay.

In addition to Red clover, which must be considered a permanent part of our cropping system, the soy bean and Crimson clover are the two crops which offer the greatest possibilities as a means of increasing the supply of forage. They are better adapted both from composition, length of season, and the manner in which they may be blended into the rotation on a stock farm than any other crop. Alfalfa is in a class to itself, since it does not lend itself to crop rotations where a considerable portion of the land is devoted to grain growing.

Green Manure—The Solution of the Humus Problem

GEORGE JORDAN.

Reports emanating from some of the Eastern States are to the effect that barnyard manure is selling in certain places for as much as $4 per ton. There is something more than a question of mere plant food behind this—it is a question of humus supply.

These high prices for barnyard manure are not being paid by the general farmer, they are coming from the trucker. With plant food much cheaper in commercial fertilizers, the trucker, it would appear, should buy these rather than the manure; but the gist of the matter is that a soils humic content is the barometer of crop production. Humus in the soil gives that friability which lime, fertilizer, and even the best of tilth fail to give. Without it moisture conservation is a hopeless idea. A lack of humus allows for leaching of plant food, already available, it allows a puddled soil in wet weather, and a dry, baking soil in seasons of drought

Truckers and farmers are only beginning to take advantage of the humus to be secured through the medium of the proper growth of cover crops.

Perhaps localities in the sandy soil districts furnish the best illustration of what a cover crop is worth. One instance is in the Maryland tomato district. This year's crop was poor. Practically every farmer when discussing the crop would bring in some mention of a two-day heavy rain in July—the tomatoes were fine until this rain, but after that the growth was checked, the fruit small, and disease took a firmer grip upon the vines. But there was one farmer with a 10-ton crop in a 2-ton district, who naturally was not worried, and an investigation of his fields showed that there was no difference in soil, treatment or seed. The main difference was that he had turned under a crop of rye on one field and a crop of clover on the other. There was but one conclusion to be made, and that was that the additional humus in the soil of the one farm held the soluble plant food of the soil and fertilizer, thus preventing leaching, and giving the added benefit of good tilth.

The rye and clover were sown in the corn at the last cultivation, since the farmer made it a practice not to follow tomatoes with tomatoes. He estimated the amount of green manure turned under at five tons per acre, and the cost of producing it about $2 per acre.

It is not, however, the sandy soils alone that respond to this green manure treatment, for a clay soil often needs "opening" just as the sandy soil needs "tightening;" and without barnyard manure in larger quantities than the average farmer has available, the cover crop is the only salvation.

Occasionally the cover crop may fail, due to the season or to factors that would cause the failure of other crops. Cover crops sown in corn may fail because of a poor seedbed or improper cultivation of the corn. The soil may be sour, or the fertility too low to give a good strong growth. Fertilizers are rarely used for cover crops, since the fertilization of the preceding crop still leaves sufficient plant food, although it is becoming general in many localities to take into consideration this point by adding additional fertilizer to the main crop for this purpose. In growing green manure crops on poor land it is, however, a big mistake to omit the use of fertilizers. Unless a good crop of material is produced to turn under the year's time has been largely wasted. It is much better economy to fertilize and insure a good crop of green manure and then recover all, or nearly all, this fertilizer when the green manure decays and becomes a part of the soil.

Maryland.

Stumps—The Champion Idlers

Somebody said that if a man could work at the full height of his power for at least one hour each day you would be amazed at what he had accomplished during the year.

Every farmer knows how much better he could do if there was nothing idle on his land, and if he could use his own hours to the best ends, but the champion idlers of the world are the stumps.

There is plenty of excuse for almost any kind of a tree on the farm, but there is no excuse at all for stumps. A stump is producing nothing, and more than that it is keeping out of cultivation what may be the best land on the farm. In addition to this, like most idlers, the stump is constantly in the way. Every time you want to cultivate your fields you have to go around the stumps, tiring the horses and yourself.

Now, the reason there are so many stumps left on farms that have been cultivated a long time is that where there are only a few stumps left it hardly seems worth while to go to the great labor necessary to take them out. Most anybody can sit down and figure where it will be unprofitable this year to take the time and expend the energy necessary to get all the fields clear.

But this is poor figuring. The expense of taking out the stumps should not be spread over one year's operation, but over ten or fifteen years' operation, because the average hard-wood stump now left in your fields will still be there ten or fifteen years from now, unless it is taken out.

And as against the cost of the operation of removing it you should figure the increased facility with which you may work in the fields and the productiveness of the land on which the stump stands, not for one year, but for fifteen years.

Figuring this way the labor of taking out the stumps is the most profitable labor you could do.

And with the modern highly improved stump pullers now in the market it is possible not only to snatch out your own stumps at a profit to yourself in the long run, but also to make a profit out of the puller even during the first year. If you have stumps your neighbors have stumps also, and many of our subscribers have not only cleared their own field, but have made money out of their puller during the first year by clearing up the fields of their neighbors.

Queries Answered

Applying Lime on Wheat.—J. E. G., Delaware, writes: "I am undecided as to whether or not it is advisable to apply lime either as lump lime slaked, or ground lime, by drill on wheat land just sown this fall. The land was in Crimson clover last summer and the clover was turned and cowpeas were sown in rows for seed. These were harvested and then the land plowed and wheat sown. Would you advise applying lime to this wheat now? The land needs lime, however, and if I do not apply now, will do so next season."

Lime may be applied without danger to the wheat if it is in a dormant condition. It is best to spread the lime when the ground is dry or frozen. I have seen very good results from lime on clover when applied in this manner. If your land is acid, lime applied during the winter will aid in getting a stand of clover next spring.

Spring Wheat.—R. H., Pennsylvania, writes: "Will you be kind enough to advise me whether it would be possible for me to sow spring wheat on our farms in Delaware? We have some land there which we wish to sow to a spring crop."

Spring wheat does not do well so far south. Tests conducted at the Delaware Experiment Station indicate that spring sown wheat is practically a failure. The hot weather which accompanies the rather late ripening of spring wheat causes the kernels to shrivel badly.

Scheduled Farmers' Meetings

Farmers' Week, W. Va. Experiment Station, Morgantown, W. Va., Jan. 1-8.

Winter Short Courses, Maryland State College, College Park, Md., Jan 2 to March 9.

Annual meeting of West Virginia State Horticultural Society, Morgantown, W. Va., Jan. 3.

Winter Short Courses Ohio College of Agriculture, Columbus, O., Jan. 2 to Feb. 23.

New York State Fruit Growers' Association, Rochester, N. Y., Jan. 3-5.

Peninsula Horticultural Society, Dover, Del., Jan. 8-10.

New York State Agricultural Society and New York State Association of County Agricultural Societies, Albany, N. Y., Jan. 18.

Pennsylvania State Board of Agriculture, State Horticultural Society, State Breeders' Association, State Vegetable Growers' Association, Harrisburg, Pa., Jan. 23-25.

New Jersey State Board of Agriculture, Trenton, N. J., Jan. 24-26.

Farmers' Week, Ohio State University, Columbus, O., Jan. 29 to Feb. 2.

Ohio State Dairymen's Association, Columbus, O., Jan. 30 to Feb. 2.

Ohio Percheron Breeders' Association, Columbus, O., Jan. 31.

Ohio Vegetable Growers' Association, Columbus, O., Feb. 1-2.

Ohio State Corn Show, Ohio State University, Columbus, O., Jan. 29 to Feb. 2. Entries close Wednesday, Jan. 23.

Ohio State Horticultural Society, Columbus, O., Jan. 30-31.

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POULTRY

Edited by F. V. L. TURNER

All letters, inquiries and requests in reference to poultry, should be addressed to the Poultry Editor of The Practical Farmer, Philadelphia, Pa.

Practical Poultry Talks

What it Means Next Year

If there is another industry in these United States that promises more than poultry in relative volume for next year it should be given a place in the limelight. Just now, at least, it is not in sight.

How many poultry raisers (and every kind, large or small, is included) have sold to the last feather is not known; it is known, however, that the markets have been flooded with chicken meat because of a doubt that the winter could be financially weathered because of high grain prices.

As a matter of fact, the profit on the retained portion of the flock cannot possibly be any greater than could have been secured from the portion that went to market. However, that part of the poultryman's private business does not enter into this discussion, except so far as it bears upon the demand which will be created next spring, for hatching eggs, day-old chicks, incubators, brooders, accessories and feedstuffs.

Day-old chick producers are already feeling the demand for next season's supply; manufacturers are planning increased facilities and milling concerns are arranging for increased distribution. Breeders, both male and female, are in demand now, with a tight market throughout the country.

Logic indicates that if there is a shortage ever so slight beyond whatever demand may be made on the poultry resources of the country next year still another year of demand will follow.

Obviously the demand, in even slightly abnormal years, is an increase over each preceding year, coming about through natural conditions.

How best to take the profits which are bound to accrue from this coming season's business is a matter almost wholly uninvolved and entirely without risk; its accomplishment automatically secures a twofold result. To meet this increased demand will require an investment in additional hatching and rearing facilities (one year's returns on which usually wipe out the expenditures); the second feature of the twofold result is the consumption of raw material (eggs for hatching), a reduction in the number available for cold storage and the increased price which these eggs will bring.

Beyond any question the price of eggs for any purpose was never nearer the control of the producer than it will be in 1917. The distance in price between the producer and consumer may be greater next year than it is now, though that part of the game is of no concern, in this instance, to the producer; he is after more money for his product—the consumer is at warfare with the middlemen, sharks, jugglers, whatever they be, and will win or lose as he is strong or weak—the producer is the neutral and therefore does not appear in the fight between the two above.

Prices now, at this moment, have not been affected by any public boycott, governmental inquisition or decrease in demand. Neither has a liberal yield been of any service in pulling down the market on anything but stored supplies. Fresh eggs are relatively just as valuable, and a little more so, than last year at this time, and will continue a thorn in the flesh of the food shark whom public effort has caused to drop a portion of his anticipated profits.

With farmers, particularly those producing the higher selling grains, a bird in the hand appeared to be worth two in the bush, in consequence grains were sold along with the chickens and the loss on the chickens because of the glut produced, became a rude jolt rather than a golden plumed handful. But these selfsame farmers, through sheer force of circumstances, will profit next spring when cold storage collectors will be received with brass bands and keys to the country at large.

Value of Good Breeding

Never has it appeared more imperative that better breeding should be practiced than it must be this coming season. February, in its very last days, will witness the lighting of thousands of incubator lamps to get out the heavier varieties for early fall production and from then on until the middle of June the peep of the new-born egg layer will be heard in hundreds of thousands of cellars throughout this big country. Millions of chicks will come into existence that will scarcely be worth their downy covering, except, possibly, as "springers." Profitable, as such, 'tis true, but what of those that the egg must come from next fall?

Bred regardless of previous performance, either because of good looks or scarcity of numbers; bred to a neighbor's cast-off male or a "swap" across the line fence, is not the kind of breeding that is going to give a full yield of eggs next October. From November 1st to January 1st is the high tide of money getting from eggs—after January 1st the market reverses itself to reach the collector's price. Nearly fifty weeks of lay is the pullet's duty and she should be of the kind that can perform that amount of work. Bred right she will—bred wrong she cannot.

There are real things being done to bring about greater egg yields by men devoted to commercializing their own resources and successes—men who believe so much in the near-possibilities that they are risking huge sums to make over not only their own flocks, but are staking their reputations against failures in the flocks of buyers. Not alone are these efforts confined to what are termed utility breeders—poultry show men are working for more than "the thing of beauty" that will be "a joy forever"—it is the fowl of set lines of beauty embraced in the egg layer that is entitled to be called a producer, just as is the Jersey cow of one fixed shape, one never changing set of colors, and almost a fixed weight for its variety. Likewise the Holstein is fixed in its size, color scheme and weight, just as the Leghorn is different from the Rock or Wyandotte. Strains of Jersey cows give more milk than other strains; some strains produce more butter fat than others; strains of several varieties of poultry are better egg producers than their counterparts in other strains of the same varieties, and no one variety has yet been proven better producers than another, the honors in all authenticated egg laying competitions have gone one year to one variety and in the succeeding year to another, all the way from Silver Laced Wyandottes through Black Orpingtons, White Wyandottes, Rocks, Langshans, to Leghorns, etc.

These men are entitled to the results that must come from their efforts. Six years ago the egg producing world was startled by a foreign pen of five birds running up a score that firmly established the 200-egg hen in America, the second year and each succeeding year bringing more evidence in corroboration of the 200-eggs hen's existence.

In the meantime American breeders had purchased some of the offspring of the wonderful foreign layers and in four years outbred the foreigners at their own game, winning by safe margins. Today the poultry industry stands head and shoulders above the position it occupied six years ago and the light of day can be seen through greater egg yields from better breeding.

From the trapnest the American poultryman learned little in its twenty years of widely scattered and remote use except that some fowls laid well and others did not—now, at this moment, the trapnest is the foundation, the indicator, governor, piston rod, the steam that drives it, if you will, that, in combination with a study of the outward (and inward, as far as we can go with a living animal) characteristics that travel hand in hand with production, high or low, and point the way to a reproduction, by heredity, of the kind we have to deal with for profit.

Coincidentally with research along lines to determine why is a layer, comes the knowledge that the male, born of a female with certain peculiarities or characteristics, possesses them to the same degree that his dam did, provided his sire does not predominate in objectionable characteristics possessed by his dam and granddam. To a very great extent these objectionable characteristics can be determined by anatomical examination before mating—the law of heredity prescribes that the transmission of the ability to lay is from the female through her son to his daughter.

In order that egg yields may be improved the poultryman must reject the non-layers, breed only to those females with records with a male of known parentage and continue to throw out the poor producers for several years. And it is worth while, for the average of 70 eggs per bird does not pay; 120 eggs per bird produces a profit, while the real money comes from every egg over ten dozen. Any male that is possessed of a pedigree is worth more than the barnyard beauty a thousand fold, and is worth all of his purchase price and a great deal more.

Reducing Cost of Poultry Feeding

While grains are high in price the poultry owner is going to use what feeding stuffs he may find available. There are a number of grains and seeds that can be put to good use in feeding poultry, some peculiar to certain sections, like broom corn seed, cotton seed, sorghum seed, rice, beans, root crops (winter stored), etc.

In order that the greatest good in eggs may result from the use of these sectional feedstuffs it is well that some little accurate data as to values should be in the hands of those wishing to lower the cost of feeding while maintaining the egg yield.

Since all of the information relative to the feeding values of different grains, ground and whole, cannot be given in these columns, those interested in reducing the cost of poultry feeding should secure the free bulletins issued by the Dept. of Agriculture at Washington.

To introduce any one of the feeds suggested above it will be necessary to rearrrange the present food formulæ in use in each case, therefore, the value of present constituents must be known, all of which are obtainable from government bulletins. A postal card addressed to the Secretary of Agriculture, Washington, D. C., will bring the information required.

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For Sale. 150 acre farm on Waldin's Ridge, house and barn, fruit of most kinds, mineral water, fine climate. A bargain. Address J. F. GADD, Graysville, Tennessee.

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Honey, chunk honey, 12c per pound in 10 pound lots or more. Fancy mixed comb honey, 12½c a box. Fancy white clover comb at 15c. Prices F. O. B. Address, ROSCOE F. WYKSON, R. F. D. 20, Dundee, N. Y.

For Sale or Exchange. Fuller and Johnson farm pump engine, used a very short time, cost $70.00, cheap for cash; also a pony break cart cheap. Would exchange either or both for anything can use. Want calves of any of the polled beef breeds. What have you to exchange? F. G. MENDENHALL, Coopers-town, Pa.

Sooner or later some substitute for the present dry ration must come as a result of necessity; wheat will be prohibitive as poultry feed, except possibly the bran portion of it; though other brans than wheat may be found that will answer the purpose. Since this is the case experimental work will be very much in evidence in the next year or two and poultry raisers will do well to start something along these lines. Barley will partially take the place of wheat under certain conditions, likewise buckwheat will assist in bringing up a balanced ration, or rather an egg making ration.

Each Hen Has a Place

Put the business of egg getting squarely up to the hen; give her the necessary feedstuffs and make her lay or sell her to market. The idle hen is a money waster and should not be tolerated. There is no place in American enterprise for complete indolence. A bunch of feathers, some bones and a little flesh may, upon rare occasions, be worth looking at, but as profit payers they are as useless as tin nickles. Get a move on the hen in the right direction or move her to the butcher. This lady of leisure can achieve nothing and her owner cannot be a philanthropist to all hendom. The best time to sell a hen is at the first sign of uselessness. Any hen can eat but not all hens lay enough to pay for their feed. A non-layer is always worth more dead than alive, even if she has to be buried. Every home table needs a chicken occasionally and there is just as good eating on a non-producer as there is on a heavy layer.

Worth While Suggestions

Cleanliness in poultry culture is just as necessary as in human culture.

Every poultry raiser keeps enough fire to heat sufficient water for a warm drink for the fowls twice a day. Over 60 per cent. of the egg is water—lack of water will cut the egg yield quicker than short rations.

Changing the water frequently means better health for the birds; quick changes prevent disease spreading.

We can take a good many leaves out of the book of nature by observing closely our domesticated animals.

We can put a mighty big kink in the chain of time by doing the right thing at the right time.

Patching the crack that lets in the sunlight today keeps out the trouble-causing drafts that will come in tonight.

Put turkeys on your list for next season's work; a half dozen eggs will give you a start.

The reason for sheltering the layers is to prevent their feed from being converted into heat instead of eggs.

Do not expect the layers to find enough food on range to even keep them half warm at this season of the year.

There's an opening for the man who can take the backache out of a hoe, a mighty good one at that, and there's a better one for the man who can make hens profitable to the same extent pullets are made profitable.

Shortage in Poultry

J. T. CAMPBELL.

It is probable that we will open the season next year with a 40 per cent. shortage in the number of fowls on farms. From this we may form some idea of prices of poultry products in the near future. Breeding fowls will be higher, eggs for hatching and chicks will cost more, and market eggs and fowls will bring unusually high prices.

During the past season the poultry crop was short, as it was an unfavorable season for rearing chicks. During the present season the poultry-packers have received unusually large numbers of fowls and our eastern markets have received heavy shipments in the face of a heavy demand. I have met many farmers who have sold off most of their fowls on account of high prices of feeding stuffs. Many other farmers will not feed high priced grain to fowls and they will be left to rustle for themselves and will not produce much under such conditions.

With the poultry business in such a condition the outlook is very good for the man who has the faith to give his fowls good care and feeding. Poultrymen and farmers should make every effort to increase and improve their flocks next spring.

Pennsylvania Dept. of Agriculture.

What We Are Asked

Broom Corn Seed for Chickens.—W. A. H., Pennsylvania: "I have about 35 bushels of broom corn seed. I have been feeding some of this to my chickens mixed with other feed and find that they consume it very eagerly. I would be pleased to have you advise the feeding value of this seed."

Broom corn seed is composed of 14.1 per cent. water and 85.9 per cent. dry matter, the dry matter containing 7.1 per cent. fibre, 2 per cent. ash, 9.6 per cent. protein, 64.7 per cent. carbohydrates and 3.5 per cent. fat. It has a nutritive ratio of 1:7.6 and a potential energy of 95. Wheat screenings are slightly better as a feed, while buckwheat is not quite so good. Mixed with whole wheat and barley the proportions would be about as follows: Wheat, 50 lbs.; barley, 20 lbs.; and broom corn seed 30 lbs. If you are willing to put up with fewer eggs all broom corn can be fed instead of wheat. Broom corn replacing wheat entirely is more fattening than either wheat or barley and can be used very profitably on broilers, springers and roosters.

Roosting.—P. W., Pennsylvania, writes: "My chickens crowd on a perch when there is plenty of room for them—some sit down on the droppings-boards and I cannot understand what they do it for. What do you think is the cause?"

Since you do not describe any of the essentials that enter into your system of keeping or caring for poultry it is going to be a hard matter to properly diagnose the case. Too much fat-forming feed, corn or corn meal, will cause indolence and a desire to preserve the heat produced with starchy foods—on the other hand, too little heat producing feeds will cause the chickens to huddle for comfort. Usually the treatment in either case is a well balanced ration of mash before the fowls all day and whole grain only in the afternoon, the whole grain ration as well balanced as the mash mixture. Very little green food should be supplied. To bring about greater activity and eggs, feed sparingly a moist warm mash in the morning, just enough to create an appetite, or about enough of this warm mixture that will be cleaned up in 3 to 5 minutes. For every ten hens add to the warm moist mash a quarter teaspoonful of black pepper. Give warm water to drink.

Catarrhal Preventive.—D. M. C., Delaware, writes: "What is the best general preventive for catarrhal conditions, colds, roup and bronchitis?"

Constant spraying of the entire quarters (at least once a week) with a good germicide, the removal or destruction of all weak and ailing birds and eternal vigilance. Far more can be accomplished by vigilant observation than any other one thing—germicides will not affect a disease fixed in the organs or circulatory system of the birds, but they will destroy the germs that adhere to the contents of the quarters. Removing affected birds in incipient stages prevents the indiscriminate scattering of disease laden excreta. This is really removing the cause. Watery eyes, hard breathing and sneezing can all be taken as premonitory signs of catarrhal conditions. Watery eyes are clearly perceptible in daylight to the casual observer; hard breathing and sneezing can be detected at night on the usual after dark round of the roosting places. Bronchitis can be detected by wheezing sounds, and such cases are quickly located.

Private Egg Trade.—V. T. R., New Jersey, writes: "Will you tell, through your valuable columns, how best to secure private egg trade in our nearby town? It has about 28,000 inhabitants."

Your opportunity, if you are not too far from town, should be a splendid one, and in all probability you will be able to secure a well paying set of customers. Fresh eggs, butter, milk, fruit and vegetables are eagerly sought by all city dwellers. Learn to candle your eggs for blood spots and air cells; sell nothing but fresh gathered eggs of uniform size put up in attractive cartons. Make your guarantee of freshness absolute—have your customers save what they claim is a bad egg and guarantee to give six eggs for every bad one. A neat card bearing your name and address and a simple statement in left-hand lower corner to this effect, "Fresh Farm Products," will do much in establishing your reliability and business. Courtesy costs nothing, and promptness is just as inexpensive. If your goods are satisfactory your customers will tell their neighbors, and before you know it you will have all the business you can handle.

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Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and makes hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker, write E. J. Reefer, poultry expert, 602 Chestnut St., Philadelphia, Pa., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his Free poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

Poultry Show Dates

Johnstown, Pa., Jan. 8-13; Earl Penrod, secretary, 104 Union St.
Philadelphia, Michell Seed Company, Jan. 9-11; T. A. Eadon, secretary, 518 Market St.
Media, Pa., Jan. 17-20; P. S. Platt, secretary, Wallingford, Pa.
Buckhannon, W. Va., Jan. 1-5. R. F. Poling.
Kenton, O., Jan. 1-6. Jno. P. Siemon.
Union City, Pa., Jan. 2-5. E. C. Mosher.
Chicago Heights, Ill., Jan. 3-6. A. E. Page.
Michigan City, Ind., Jan. 4-9. A. L. Peterson.
LaFayette, Ind., Jan. 8-13. C. J. Munger.
Jeanette, Pa., Jan. 8-13. L. A. Kearns.
Louisville, Ky., Jan. 8-13. Ohio Falls Fanciers' Association.
Evansville, Ind., Jan. 8-14. W. S. Kirves.
Warwick, N. Y., Jan. 9-11. G. A. Williams.
Oneida, N. Y., Jan. 9-12. R. H. Dewitt.
Boston, Mass., Jan. 9-13. W. B. Atherton.
Norfolk, Va., Jan. 9-13. L. C. Page, 123 Bank Street.
Elmira Heights, N. Y., Jan. 10-13. H. B. Peckham.
Charleston, W. Va., Jan. 15-20. Julian C. Byrd.
Corry, Pa., Jan. 15-20. L. M. Durham.
Utica, N. Y., Jan. 15-21. L. J. Bushnell, Oriskany, N. Y.
Huntington, W. Va., Jan. 22-27. Geo. Parent.
Marietta, O., Jan. 22-27. T. N. Fenn.
Middletown, Conn., Jan. 23-26. Charles L. Bliss.

Name following date is secretary of the show, whose address is place stated unless otherwise specified.

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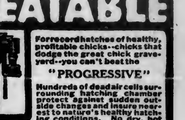

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HORTICULTURE

Edited by C. A. McCUE

The Peach Tree Borer

The peach tree borer is, in many sections of the United States, the worst insect pest that the peach grower has to contend with. The San Jose scale in the North and the curculio in the South have undoubtedly caused greater losses in the past than the peach borer, yet when we remember that we can practically control these two pests, while we as yet have no sure remedy for the borer, the importance to the peach industry of the latter insect can scarcely be realized. It has been estimated at many millions of dollars. The pest attacks trees of all ages, from the nursery tree to the old, decrepit veteran of the orchard. Sometimes, but not often, a tree is killed outright the first year. Usually the damage is accumulative and if the borer works unhindered the tree dies at the age of five to seven years, depending upon the severity of the attacks. Many orchardists lose their peach trees by borers without ever realizing what causes the trouble. To illustrate, last summer a county agent was asked by the owner of a large peach orchard to inspect it. He said that something was the matter with his peach trees; they did not look right and he wanted to know what the trouble was. Upon his arrival the county agent asked: "Have you any borers?" "No," the answer came, "I have been growing peaches for twenty years and have never had borers trouble my trees. My neighbors have complained of them but I have never seen a borer."

"Let's go out to the orchard and have a look," said the county agent.

The agent stopped at the first tree he came to, got down on his knees and in less than five minutes had dug out nine borers. So it went from tree to tree—five to fourteen borers in every tree examined.

"Well," said the owner, "I wouldn't have believed it if you hadn't shown me. I reckon there is no use looking any further to find out what ails these trees."

"We have located the main trouble," said the agent, "if you get busy you can save this orchard."

Astonishing as it may seem, there are thousands of peach growers who don't know what a peach borer looks like. It hardly seems credible that a man can grow peach trees year after year, and year after year see his trees decline in vigor and productiveness and finally die without having the slightest inkling as to where the trouble lies. He says we can't grow peaches like we used to; the "yellows" gets them. The "yellows" has had a lot of crimes and deaths laid to its door that it has been entirely innocent of. I venture to assert that in the majority of peach growing sections that to every peach tree dying from yellows there have been three killed by borers, and the yellows get the blame in all four cases.

HOW THEY LIVE AND WORK.

The damage caused by the peach tree borer is the work of the larvæ of small moths. These moths are most active during the heat of the day. They fly about the orchard and are mistaken for wasps by the casual observer. The moth is of a steel blue color, but the female is easily distinguished from the male by the fact that she has a broad orange band extending nearly around her body. The female deposits her eggs singly or in small groups on the trunk of the peach tree and usually near the base. These eggs hatch out in from nine to ten days and the young larvæ (grubs) start to burrow into the bark. It has been found that each female is capable of laying from 200 to 600 eggs before she dies.

When the young larvæ burrow into the trunk of the tree they grow very rapidly and devour a large amount of wood tissue. They confine themselves to the new, tender tissues and usually eat downward toward the root, although their burrow usually takes a diagonal course. The result is a loss of valuable time, as well as shutting off the downward course of sap in the tree. If many of the insects are in a tree they tend to girdle it, and as a result, after two or three years of attack the tree dies. Another type of peach tree killing can often be traced directly to the work of the peach tree borer, especially in one or two year old trees. The partial girdling of the young tree stops the downward flow of sap and causes the formation of a mass of soft tissue just above the injury. This tissue fails to properly ripen before winter sets in and if the cold be severe this tissue is frozen and the tree is winter-killed.

When the larva is full grown it is about an inch in length and of a light yellow color. When winter comes on the majority of the larvæ are about half to two-thirds grown and pass the winter in a quiescent state in their burrows beneath the bark; those not so large crawl out upon the trunk of the tree and cover themselves with a silky covering which, with the gum that exudes from the wound, protects them throughout the winter. When spring comes the borer either resumes feeding in the old burrow or starts a new one. When the larva becomes full grown it leaves the burrow and encloses itself in a rough, brown, elongate oval cocoon of silk. These cocoons are attached to the bark of the tree at or near the surface of the ground, or in some cases may be found lying loose in the soil. In about four weeks after forming, the cocoon is burst asunder and the adult moth emerges, to mate and lay her eggs for another crop of borers.

In any method of control of the borer it is of importance to know about what time these moths emerge from the cocoon. Unfortunately no set time can be given for the whole United States. According to Singerland the moths emerge from the middle of June to the first of September. In New Jersey, Delaware and eastern Maryland the time is approximately from June 15th to September 15th. In Georgia the majority of the moths emerge between August 1st and October 1st.

HOW TO CONTROL THE BORERS.

Although many kinds of treatments have been tried to control the borer, no one has proven an unqualified success. The best results are still obtained by digging the borers out with a knife. It is usually necessary to go over the trees twice a year. First about the last of June to catch the brood laid by the early moths, and again as late in the fall as is convenient. This late fall borer digging is very important. At the time it is done there will probably be no more eggs laid that season, and the entire crop of larvæ are in or upon the trunks of trees ready to be killed.

In digging out the borers, first remove the earth from the base of the tree to a depth of about 4 inches. The larger burrows are easily discovered by the gum which has oozed out from them, and by scraping the bark with the knife or a stiff wire brush the smaller burrows can be found. In the late fall digging this scraping also kills a great many of the smaller larvæ which have come out for the winter. To find the larger borers often a great deal of cutting is necessary. If this cutting is done carefully and in the direction of the grain of the wood the wound will heal quite easily. When the borer is found, kill it. Many advise the use of a sharp wire instead of a knife, the idea being to follow up the burrow with the wire and kill the larva with the point. In our experience the wire is not nearly as efficient as the knife, and too many larvæ escape. As soon as the borers have been dug out, mound the earth up around the trunk of the tree to a height of 9 or 10 inches. This causes the moth to deposit her eggs higher up the trunk and the newly hatched borers enter the tree high up from the roots and it is much easier and less tiresome labor to find them. Some advocate the use of a wash after the June digging and before the earth is mounded up. Our experience has been that there is no wash that is efficient in controlling the borer. Some success has been had in California by painting the trunks of the trees with Grade B asphaltum, but as far as Eastern conditions go the asphaltum treatment has been a failure. Some growers use gas tar as a paint. Some fairly good results have been obtained by its use, but it is dangerous to use in the fall when the wood about the crown of the roots is still soft and unripened (the wood about the crown of a tree is the last to harden up in the fall). Gas tar should never be applied in the fall; the trees may be killed. However there seems to be no danger resulting from applying it in the spring when the tree is growing rapidly.

Various kinds of wrappers have been tried, but they have been mostly discarded because they make the bark tender. Some growers have had some success by digging out a shallow hole about the trunk of the tree and filling it with lime. This treatment needs further testing to prove its efficiency. A patent collar made of roofing paper has been put upon the market; these collars seem to be efficient under some conditions, while under others they have not proved so good. The knife is still the most efficient treatment for the peach borer.

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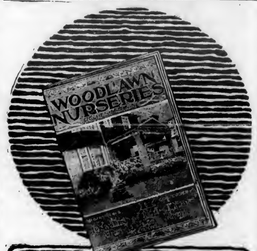

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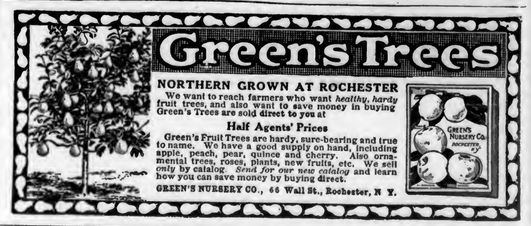

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The Value and Care of a Farm Woodlot

Each year good timber commands higher prices and the farmer who has a wood lot is indeed fortunate. Foresters tell us that much of the timber of commerce is now being produced in farm wood lots, and as better care is being given to them the amount is steadily increasing.

Co-operative associations of wood lot owners holding sufficient timber land to make a working forest are in a position to demand higher market prices than they can expect as individuals. The services of a reliable, experienced timberman can also be secured to aid in selling the products.

Marketing wood-lot products has become a problem of importance, because forests are now in small areas and timber is commanding an unusually high price. Owners now realize that marketing the timber is just as important as its production.

These facts have brought to the minds of wood lot owners the question of selling through organization. Several farmers could make up carload lots for market, and then sell at greatly increased profits over sales they would make when working alone. Markets could be investigated to find where the highest prices are obtainable.

Moreover, such an association could increase profits by securing a trained forester. This man could outline plans for wood lot management and act as adviser in lumbering and marketing. In the woods he could estimate the market value of the standing timber, so that the owner would know how to sell most profitably. He could obtain higher prices because of his experience and knowledge of markets.

This subject of selling lumber is discussed in Bulletin 302 recently issued by the Ohio Experiment Station at Wooster. The author shows how farmers may estimate the value of their standing timber and what the principal uses of the important woods are.

WOOD LOT AREA IN PENNSYLVANIA.

For every three acres cultivated by the farmers of Pennsylvania there is one acre of woodland on the farm. How much are these wood lots contributing to the farmer's living at the present time? The census figures of 1910 show that 78,045 farms in the state reported having harvested for use on the farm or for sale, forest products to the value of $7,986,599 in 1909. This is an average of $102.33 per farm reporting.

There are, according to figures secured at the same time, 4,281,439 acres of woodland included in the farms of the state. With better care this land will earn considerable more for its owners than it is now doing. It will repay well all the care put on it.

PRUNING YOUNG TREES.

Young trees in the wood lot should be pruned. If the lower branches are allowed to develop, they will cause knots in the lumber. As soon as a branch dies it should be cut off close to the trunk so that the wound will heal quickly. Stubs should not be left, as the resulting rot will extend into the trunk. After a limb has been sawed off the wound should be covered with a good paint or tar, to keep out the rot. Often lower live branches may be removed without injury to the growth of the tree. However, care must be taken in pruning not to reduce the crown too much. The larger the crown, the faster will be the growth of the tree.

J. A. Ferguson, forester at the Pennsylvania State College, says that it should be the aim in growing trees in a wood lot to secure at least one log of clear lumber. This can be done by pruning the trunk to a height of about 16 feet. In pruning a limb from a tree one should first make an undercut close to the trunk and then saw the limb from above. This will prevent tearing of the bark. Young trees growing along fences will produce clear wood of value if lower limbs are not allowed to develop.

CAREFUL SELLING METHODS.

That the wood lot owner who merely guesses at the value of his timber may find his guesswork very costly is well illustrated by the following instances of the difference between guesswork and intelligent solving of wood lot problems taken from U. S. Department of Agriculture Farmers' Bulletin 715, "Measuring and Marketing Wood Lot Products."

A wood lot owner in Maryland received an offer of $1500 for a tract of timber, which he was inclined to accept as a fair price. Before the sale was made, however, he requested the advice of the state forester as to the amount and value of the timber. As a result the state forester made an examination of the tract, estimated the market value of the timber, and furnished the owner a list of timber operators who might be prospective buyers. The timber was then publicly advertised, with the result that the man who had previously made the $1500 offer raised his bid to $4500, and the sale was finally made to another person for about $5500. Only three months elapsed between the date of the first offer and the final sale. Not only was the original offer increased by nearly 270 per cent., but the wood lot was also left in excellent condition. This was accomplished by having the trees to be cut selected and marked by the state forester with a view to leaving the young growing timber on the ground, together with sufficient seed trees to restock the open places. The contract further called for close utilization by cutting the stumps low and using to small diameters in the tops, the lopping of tops for cordwood, and the scattering of the remaining brush.

An owner in northwestern Ohio received bids of $550 and $600 lump sum for his timber. Following the advice of a relative who had previously run a sawmill, he engaged a portable sawmill, sawed out and sold the following at the prices named:

(1) White oak butts, rough lumber for wagon stock, hickory butts for bands, and elm butts for hoops, sold for	$1,350
(2) Barn frame, cut and used on the farm, value	600
(3) 500 railroad ties, sold for ...	250
(4) Balance, consisting of cheaper poles, "sap timber, cull and refuse" sold to the buyer who had offered $600 for the standing timber for	350
Gross receipts from timber,	$2,550
Total cost of operation,	1,150
Net for stumpage, value and profit,	$1,400

It will be noted that $600 was the highest bid received for the standing timber, whereas he cleared $1,400.

In western Ohio a wood lot owner who had carefully protected his best timber for many years, accepted, in 1914, a local buyer's lump sum offer of $260 for the timber on 6.5 acres. The trees were tall, clean, good-sized white and burr oak of high grade. By a careful measurement of the stumps and tops, made just after logging, the writer found that the tract had yielded not less than 14,500 board feet per acre, or a total of something over 84,500 board feet. A fair price for this quality of timber would be $17 per 1000 feet on the stump. At this rate the timber included in this sale was worth not less than $1,436, or $1,176 more than the farmer received for it. Though this may seem to be an extreme case, mistakes only slightly less striking are common.

UNFAMILIAR USES FOR WOOD.

In addition to the ordinary uses of wood with which we are familiar, mankind is dependent upon the forest for a variety of products whose appearance does not indicate their origin, say members of the Federal Forest Service. Numerous as these products are, and as extensive as is their use at the present time, science is constantly learning new constituents which enter into the make-up of wood and is finding new uses to which these constituents and those already known can be put.

Charcoal, as every one knows, is essential for the manufacture of black powder. All of the acetone used as a solvent in making nitrocellulose powders is derived from acetic acid, a product of hard-wood distillation. Great Britain, it is said, is dependent upon the United States for acetone used in making cordite. Black walnut is a standard for gunstocks, and has been so much in demand for the past two years that our supply of this valuable wood has been considerably reduced and other woods, notably birch, are being substituted. From Europe comes the complaint that there is a shortage of willow for making wooden legs.

By converting cellulose, one of the elements of wood, into a gelatinous material, known as viscose, a wide field is opened up for the utilization of wood waste, and a new line of products, varying all the way from sausage casings to tapestry, is added to the already lengthy list. Many of the so-called "silk" socks, neckties and fancy braids now on the market contain artificial silk made from wood.

About nine-tenths of all the paper which we use is made from wood. Besides the detailed investigations of the methods of making news print paper, and of the production of paper from woods hitherto unused for that purpose, which have been conducted, kraft paper, which compares favorably with the best on the market, has been produced experimentally at the Forest Products Laboratory from long leaf pine mill waste.

This laboratory, at Madison, Wisconsin, was the first of its kind in the world and is probably still the best equipped. With the possible exception of Germany, no other country has done so much as the United States systematically to investigate the possibilities of its forest resources.

To Fight New Pine Disease

White pines of United States and Canada are threatened with ultimate destruction by a fungous disease recently introduced from Europe known as white pine "blister canker." Arriving on imported nursery stock, it has already spread through New England and several localities in New York State. At a meeting of the executive committee of the Committee for the Suppression of the White Pine Blister Rust in North America in New York, plans were made to appoint a large committee representing each state and the provinces of Canada to secure necessary legislation and funds to fight the plague.

E. C. Hirst, State Forester of New Hampshire, J. G. Sanders, State Zoologist of Pennsylvania, and Wm. P. Wharton, of Boston, are the executive members of this international committee.

The American Forestry Association was represented at this meeting by Pres. Charles Lathrop Pack, of New York, and P. S. Ridsdale, of Washington, D. C., editor of American Forestry.

This Association proposes to enter the fight against the disease and use every means to interest the people in the danger of this important destructive plague.

Eastern states will fight the disease as thoroughly as funds will permit, and will seek government aid and expert advice.

The white pines, including all five-leafed pines, ranging from the Atlantic to the Pacific across the United States and Canada, and valued at approximately $300,000,000 will be wiped out ultimately, unless this disease is controlled. The undersized trees and the young seedlings being propagated will also be destroyed, as has been the case in Belgium and Holland and parts of England, where this pine pest has gained a foothold. The curious nature and habit of this disease has been determined by study, and it is found to affect currants and gooseberries, both cultivated and wild, during the summer season, forming rust-red spores or pustules on the under side of the leaves, in late summer and autumn reinfecting the pine, usually through the needles. Three to five years may be required for the incubation and growth of the disease in the pines before the disease reaches the mature fruiting condition, which produces millions of spores and reinfects the currants and gooseberries.

This new disease is fully as serious as the chestnut blight, which is rapidly wiping out the native chestnut, and must be counted as another dangerous pest introduced from foreign countries, along with the San Jose scale, citrus canker, gipsy moth, brown-tail moth and the chestnut blight.

Many years ago Germany and other European countries prohibited all plant imports from the United States, but we blindly allow shiploads of plants to arrive, bearing new diseases and insects, which are costing millions now, and will continue to increase our losses.

SAWS

ANY WOOD IN ANY POSITION ON ANY GROUND 4 in. to 5 ft. Through

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ESTABLISHED 76 YEARS

Potatoes Enrich Maine Farmers

By MYRON S. HAZEN

Do you realize that Aroostook Co., Maine, is now the richest agricultural county in all of the United States? It has been my good fortune to visit this county many times and I have found the farmers in varying moods, depending upon the crop conditions and market price of potatoes. I have never seen any farming community where the general spirit of optimism seemed to so fill the air as it does in Aroostook this year. Prosperity is rampant, and from the smallest farmer to the largest grower, every man has money in his pocket and a greater faith than ever before in the future of the potato crop. It is a land of potatoes, and on the success of the potato crop hangs the success or failure of a great many farmers in that section.

The government reports show a shortage in the United States of more than seven million bushels as compared with last year's crop and a total production of only about 79 per cent. of a normal crop. There is a tremendous demand for table stock and as the Aroostook county seed is particularly popular in the South, seed potatoes are bound to be very high.

To those who are disposed to believe the stories in some of the newspapers about the decline of agriculture in New England, a visit to Aroostook would prove a revelation. In the first place, one is impressed with its bigness. Aroostook county alone covers an area equal to about that of the entire state of Massachusetts. It is a wonderful rolling country and those of us who are familiar with the average Eastern farm are surprised at the great fields containing 100 to 200 acres without a single fence or stone wall to break them.

We find farming in this wonderful county in the hands of big men; big physically, big mentally, big hearted, and of a type having the courage to invest their last dollar and their last pound of strength in the soil.

SOIL.

In general, the soil is a rich, gravelly loam; under this there is a strata of lime deposit. When heavily fertilized, this soil responds wonderfully to good tillage. In addition to this highly favorable soil, Aroostook has the benefit of moderately cool summer weather and an evenness of summer temperature which is of great value to the farmer who is raising potatoes. Potato raising is reduced to a business proposition and there is probably no section of the United States which excels this county. Few farmers in Aroostook plant less than 40 or 50 acres of potatoes, and plantings of over 100 acres by an individual farmer are very common.

ROTATION.

The Aroostook farmer has learned to benefit from the long cold winter and plows most of his land in the fall. The alternate freezing and thawing makes available some plant food in the soil, improves the mechanical condition and destroys many worms and grubs.

The rotation usually followed is potatoes, oats and hay. Potatoes are planted in the spring and followed the next year by oats seeded to grass and clover. In some sections, farmers prefer to plant potatoes two years, but this plan is open to discussion, and, as a rule, the best crops are produced on new sod.

Spring wheat has done well in the county, but the average farmer prefers to seed in his oats.

PLANTING.

The tremendous acreage makes hand labor impracticable and all planting is done by machines. The planting is comparatively shallow, so the seed pieces are near the surface of the ground and get the benefit of the warm surface of the soil before the sun has thoroughly warmed the lower layers.

The potato rows are spaced 32 inches apart and the seed dropped about 9 inches apart in the row. This, of course, requires a larger quantity of seed (about 16 to 17 bushels per acre) than when the rows are spaced 3 feet apart and the seed dropped 12 inches apart in the row. The additional seed, however, is paid for in the greatly increased crop and the more uniform size of the potatoes.

Machines make it possible for the farmer to apply his fertilizer at the same time that the planting is done. A good team and an experienced man will customarily plant 5 or 6 acres a day, sometimes more under exceedingly favorable conditions.

CULTIVATION.

Soon after planting, a weeder or brush harrow is usually run over the field to level down the earth left in ridges over the rows. This destroys the small weeds and levels and pulverizes the soil. It also brings the sunlight and air nearer to the seed pieces. However, if the field is in first-class cultivation, this step may be safely omitted.

The general custom is to completely bury up the young plants as soon as they break through the soil. When the young plants appear so that the rows may be clearly seen, the horse hoes are started and the burying up process is carried on as rapidly as possible. It is customary at this time to apply a second application of fertilizer. This is in addition to the one which is made at planting time. This burying up process is often done successfully by the use of potato planting machines. Both the plows are removed but the disk covers and the fertilizer attachment are left on. The burying up process makes a broad, low hill. The Aroostook farmer customarily intends to cover his crop with about two or three inches of fine, mellow earth. From the time that the crop is covered up, the riding cultivators are kept busy until just before the crop begins to bloom. At the time of the last cultivation the earth is thrown into high ridges with a horse hoe.

Field of Green Mountains Grown by Benj. Ward, Aroostook County, Maine

SPRAYING.

Spraying is commenced early in the season when the plants are from four to six inches high. The second spraying is given about ten days later, the third about ten days after this and spraying is continued until it is impossible to drive the spraying wagons or carts through the fields. Thus the weakening of the potato plants by the flea beetle and the Colorado potato bug is prevented. As a result of thorough spraying, the early blight and the late blight (which were formerly so common) are getting to be almost unknown. More important still is the fact that the potato plants are kept growing until late in the season and being in a healthy condition are able to utilize moisture and plant food to the best possible advantage.

FERTILIZATION.

Aroostook farmers are large users of commercial fertilizers. They demand the very highest grades, as well as the very best quality. In some sections we often hear the remark: "I can't afford to use a high priced fertilizer." The farmer in Aroostook county is firmly convinced that he can't afford to use any other than the best. The average Aroostook farmer has to "be shown" and is constantly experimenting with fertilizers.

A prominent potato grower in Presque Isle told me recently that he had purposely left sections of some rows in some of his large fields unfertilized in order to see whether or not commercial fertilizer really made any difference. Where the high grade commercial fertilizer was used at the rate of a ton to the acre his yield was 462 bushels per acre. Where the fertilizer was omitted, the yield was about 100 bushels per acre.

Dr. G. M. Twitchell, one of the best authorities in Maine, says in regard to fertilizer for potatoes:

"One ton to the acre is the general rule. * * No man can afford to have his potato roots search for food. It may not require the ton to grow 300 bushels of potatoes, but much less will fail to do the work desired because the supply in, through and about the hill is not abundant."

In order to ascertain whether or not potatoes could be successfully raised in Aroostook without the use of potash, Dr. Chas. D. Woods, of the Maine Agricultural Experiment Station, conducted a series of careful experiments in 1915, and stated in a report on Nov. 2, 1915, the following:

"On the result of this year's experiments it seems probable that even if commercial fertilizers should contain no potash next year, a slightly reduced but still profitable yield of potatoes may be expected. The station therefore recommends that growers in Aroostook do not reduce their acreage next year on account of the potash shortage."

Dr. Woods' experiments show that the average of his test plats without potash yielded 302 bushels of merchantable potatoes per acre. The plats where 2 to 4 per cent. of potash was used gave practically the same yield (320 bushels per acre). The plats where 7 per cent. potash was used produced 331 bushels per acre

Unlike some of their more timid brethren, the Aroostook farmers had the courage of their convictions and planted potatoes freely on "no-potash" goods. The result is that instead of conducting their farm work at a loss, they have made tremendous profits. There are many cases in Aroostook county where farmers have cleaned up thirty, forty and even fifty thousand dollars from their potato crops.

I was strongly impressed that the home mixing of fertilizers is not practiced in that region. The farmer who has 100 acres of potatoes to plant must conduct his spring operations with a rush. Several potato planting machines must be kept busy in the field, an extra crew of men is required at high wages and a number of boys and girls must work cutting the seed potatoes while the teams draw the seed and fertilizer to the fields.

If the fertilizer is damp or clogs in the planter, all of these operations come to a standstill.

In the matter of fertilizers as in other matters, the Aroostook county farmers have the courage of their convictions, and there is no section of the country where the farmer purchases as high a grade of fertilizer or uses as large an application to the acre. The Aroostook farmers concern themselves chiefly with the quality of the fertilizer which they use. They are loyal to established brands and feel that the reputation of the concern back of the article is as important as the analysis on the bag. The splendid results in the way of crops and profits which they have had indicate that they are on the right track.

DIGGING.

The end of the story comes at the end of the season, and to those of us who were privileged to go through Aroostook county this fall it was indeed a sight for sore eyes.

The big digging machines were going back and forth across the great fields, bringing up clean, smooth tubers, sifting the dirt and vines from them and leaving behind a trail of potatoes which were in reality more valuable than a trail of gold. These potatoes were picked up and rushed to the storehouses or cars. The price kept rising almost as rapidly as the potatoes rose on the elevator of the digger.

SUCCESSFUL CROPS.

I have been accustomed to farming in New York State, and the yields which I saw in Aroostook were almost unbelievable to me. The average yield in Aroostook county this year would not be far from 275 bushels per acre. The government report states that the average yield in the entire state of Maine is about 204 bushels per acre Even more phenomenal yields have been made in the past. The best one that I have ever seen personally was made in 1914, when Mr. L. S. Bean, who raises high grade seed potatoes for Messrs. Peter Henderson & Company, seedsmen, dug 660 bushels of Irish Cobblers on a measured acre.

The greatest sight that I saw during my entire trip in the county was the field of Mr. Benj. Ward. I will never forget that mammoth field of 75 acres as it rolled away from the road with its long rows each measuring exactly one mile in length. There was not a single stone wall or fence to mar its beauty. The day I called he had just finished digging his Cobblers, and ten acres of this field had produced 1560 barrels, which is equivalent to 156 barrels, or 429 bushels per acre. I do not claim to be a potato expert, but if I am any judge, the 65 acres of Green Mountains which comprised the balance of this field will produce from 150 to 170 barrels per acre. Mr. Ward used a fertilizer containing 5 per cent. ammonia, 10 per cent. available phosphoric acid and no potash.

On a conservative estimate, and considering that the 75 acres only produced 150 barrels per acre, Mr. Ward has produced at least 11,250 barrels of potatoes. Potatoes in Aroostook today are worth $4.25 per barrel, so that Mr. Ward's crop would be worth $47,812 on the basis of today's price. If he could sell them at the price the city consumer pays for them, we would hardly dare estimate his wealth. This is indeed a wonderful record of a crop on "no-potash" fertilizer, and I believe that the lesson our Aroostook friends have learned this year will be of real encouragement and help to our friends in other sections of the country.

It is interesting to compare the average production of Aroostook county of about 300 bushels per acre, with that of the states of New York and Pennsylvania. Government reports show that the average yield per acre in New York this year is 70 bushels, while the 10-year average is only 96 bushels per acre. The average yield in Pennsylvania for ten years is 85 bushels, while the average yield this year is only 70 bushels per acre. It is the old story over again and figures do not lie. The difference between intensive farming and ordinary farming is the difference between success and failure, the difference between bumper crops and lean crops, plenty and starvation.

The average application of commercial fertilizer in New York and Pennsylvania does not exceed 300 to 500 pounds per acre. The average application in Aroostook exceeds one ton per acre. The average Pennsylvania farmer buys a comparatively low grade fertilizer; the Aroostook farmer buys the best that he can get, regardless of price.

Digging time and harvesting time tell the story. Feed your crop and your crop will feed you.

Whenever you are in need of real agricultural inspiration and you become depressed from listening to the "calamity howlers" who tell us that this country is headed toward starvation, and that our American farmer is not progressive, lay aside your cares and troubles and set your face northward to the land of opportunity.

Th Aroostook county farmer is proud of his reputation. He believes that he is the best potato grower in the country

(Concluded on page 17)

OUR EXPERIENCE POOL

All our readers are invited to contribute their experiences on the topics under discussion. $2.00 will be paid for the best, and $1.00 for the next best contribution, and 50c for each other article published. Contributions must be in our hands 15 days before date of issue.

TOPIC No. 1211, JAN. 15.—How do you handle the manure from your stock? Do you have a track carrier in the stable? Do you pile the manure in the barnyard, in a shed or haul it direct to the field? Do you use a spreader? Can you tell us how much it costs to apply a ton of manure to your fields? Limit, 250 words.

TOPIC No. 1212, FEB. 1.—What has been your experience feeding corn silage or mixtures of it, to horses, mules, sheep, swine or poultry? Tell how much was given at each feed and what was used with it to complete the ration. What effect does it appear to have on the general health of the animals? Do you save any money by feeding it and selling other farm crops? Do not write about your experience feeding it to dairy and beef cattle; we have had Experience Pools on that subject; confine yourselves to your experience with silage as a feed to stock mentioned in the question.

TOPIC No. 1213, FEB. 15.—What methods do you use for testing your seed corn? Do you use one of the commercial graders now on the market? Do you treat the corn to guard against injury by crows? Tell us of any other way you handle the seed so as to insure a perfect stand of corn.

Topic No. 1210.—What are you doing with the farm wood lot to conserve or increase it? If you are setting out new trees what varieties are they? Have you provided any fire protection for it? What products do you receive from it except fuel and fence posts for home consumption? How large is your wood lot and what do you consider it worth to you each year?

S. M. T., Delaware Co., Pa.—We consider the wood lot on our farm one of the most important assets. Consequently we keep this piece of land well fenced to allow all young trees to grow freely. In this way we have always been able to keep a succession of trees coming on to a profitable size. As the older trees get mature or ripe we cut them out for saw logs and use the tops for firewood.

This wood lot has always seeded itself with white and black oak, beech, poplar, wild cherry and some chestnut. We have planted hickory, walnut and ash several times, but they have never seemed to take very well. As this lot is not far from the house it can easily be watched for fires and we have never had any serious ones. When a fire does start we beat it out with wet hemlock branches. Chestnut timber is almost extinct in this vicinity on account of the chestnut blight. Our wood lot covers only about three acres, but we get a good deal of material from it in the form of fence posts, firewood, logs for sawing and logs for pulp wood. Hickory, ash, oak and gum make good lumber, while poplar goes for pulp wood, one log often bringing $25 on the stump. We sell cord wood from the hickory trees for $7 a cord, for open fire-places. In the past two years we have cut four saw logs, three pulp logs, several cords of wood and a number of fence posts, so that it would be safe in estimating the income from the wood lot at $150 for that time. This varies, as some years labor is scarce and it is impossible to get the trees cut in winter when they should be. But taking the land at its assessed value of $160 per acre, and taxes on that at $7 to the acre, we still have a profitable investment. In fact, we consider that the vaue of the firewood will pay the taxes and interest, leaving the saw logs almost clear profit on the land.

P. I. S., LaFayette, Ind.—To conserve the farm wood lot it is necessary to keep out all kinds of stock, and the forest bed must be porous enough to hold all the rain or snow which falls upon it. The open spaces should be planted with seedlings or nuts, and all trees of a low commercial value should be cut out. When setting out new trees we plant catalpa and black locust, the latter on the poorest spots, as it will grow well on poor land, while the catalpa requires rich land for the best results. No other varieties are planted by us, as we do not want to wait more than eight years before we get the returns for our labor. We have provided clean lanes for fire protection; these lanes are about 50 feet apart and can also be used for roads. From this wood lot we get fence posts, fuel, sled runners, tool handles and many other useful pieces too numerous to mention, besides a good windbreak, which is worth mentioning. Do not plant the wood lot too near the buildings. We leave a space 100 feet wide to catch the snow; otherwise our buildings might be snowed under. Our wood lot contains two acres. We cut 900 fence posts every year after the trees had been planted eight years; most of them made two posts and some trees made three posts, which are worth 35 cents each. Our wood lot makes $300 a year.

H. C. McC., Ashville, N. Y. — Our wood lot is rather small, consisting of about 15 acres, containing a little over 200 sugar maples, the balance beech and hemlock. As one means of conservation we never intend to cut anything that is sound and all right to leave. The woods stand out by themselves, so that there is no need of fire protection, but the west side is pretty badly exposed to the winds; the trees die off worse and brush comes in slowly. Along that side I intend to set a windbreak of some good, fast growing evergreens. If I had any waste land I should most certainly set it to trees, but am a little undecided as to variety.

When the place came into possession of our family 27 years ago it had been pastured so heavily that there was not a particle of brush in the woods, and they were rapidly dying out. We have not pastured the wood lot much, and at the present writing most of it is covered with a heavy growth of underbrush. The sugar trees are worth at least $50 per year, and I would consider the whole lot worth not less than $100, and, as we handle it, it is getting better every year.

I often wonder why so many people value their wood lot so little. We bought the wood on a lot and are taking it off now—lots of nice, straight ash, maple and elm 4 inches to a foot through. We paid $20 for the wood, and if it could be left for 20 years it would be worth at least $2000. A neighbor, who is awake to the situation, has a large wood lot for his supply. He goes into the thickest of it, where it is too dense to grow much, and thins it out just enough to give the balance a fair chance. Spots thinned but four or five years ago, have grown astonishingly since. The man who owns a good wood lot is certainly fortunate. If he is wise, he will take the same care of it that he would of any other crop, and will undoubtedly be far better paid for his trouble.

G. S., Delaware.—Having 40 acres of forest, seemingly all that is needed, we are not planting more, but conserving what we have by cutting the timber as it reaches good marketable size, carefully sparing smaller growth, and, for fuel, using fallen, dead, dying and cull trees, also thinning in places where too thick; in brief, trying to follow the teachings of modern forestry.

We can devise no practicable means of fire protection, but use caution in burning trash, and watch at all times, as one naturally should. We use saw timber, etc., for farm improvements, also ship to city markets, and dispose of wood for fuel in town. Seemingly a conservative estimate of annual value is from $50 to $100, while within fifteen years, aside from what we harvest from year to year, the saw timber should bring more than $1200, and with much stove wood extra, since we do not use nor sell nearly its increase in growth.

R. B. R., Ozark, Ill.—My farm wood lot consists of 20 acres of timber land which originally was covered with much walnut and white oak. In years gone by about all the largest walnut and oak was cut, but there are thousands of young saplings coming on, and other trees are now getting large. With the recent plantings of lots of walnuts in thin places, it is now quite a satisfaction to gather load after load of nuts and get 50 to 75c. per bushel for them. In thinning out where they are too thick to grow large the telephone companies are glad to pay a dollar for the good sized walnut telephone poles. I have sold lots of them for that. The crooked or broken pars are used for posts and fuel. The hogs running in there have quite a time with the waste walnuts and the mast and other stuff they gather up here and there. We have come to look upon the wood lot with much pride. In fact, for the labor expended it is now proving to be as profitable as any land on the farm, and is beginning to look like it may discount many pieces its size in the near future. I am getting it down now to a regular supply of fuel, posts, poles and walnuts to sell, and many of the larger trees will soon be in shape to sell as saw logs, which are getting exceedingly high.

I intend to keep planting, and my son is very much interested in it also. I wish to leave it in much better shape than I received it, so that my children can get good profits from it. It is easily done, but so many never think of such a thing.

W. T., Gansevoort, N. Y.—My wood lot consists of about 100 acres, well set with trees adapted to the soil. They readily reproduce themselves and no setting is necessary. From time to time a few acres are sold to lumbermen to be cut off clean; some timber is sold on the stump, also telegraph poles are sold standing. There is a good local demand for cord wood, and this I work out myself, taking a small piece each year and cleaning it thoroughly. I cut out the dead and crooked trees, clear out the inferior growth and thin and trim up the desirable stock. In this way I get an income of $200 or $300 a year, and the lot is steadily increasing in value. In the course of 10 or 15 years, barring accidents, I shall have a lot worth several thousand dollars, at which time I can sell to the lumbermen, or perhaps better still, procure a small mill and fit the product for market myself. No special fire protection is provided, and, judging from the experience of many years in this section, none is needed.

P. R. S., Wellsburg, W. Va.—I have a natural forest of about six acres, which has never been commercially logged over, but just culled from in the past for fencing timber, and at present I am not getting any value from it except as a sheep pasture, there being an abundance of young growth in it too large for the sheep to injure by grazing. Realizing, a few years ago, that timber was of slow growth and that the fencing material was pretty well culled from my woods, I planted out a 2-acre plantation of hardy catalpa and native yellow locust. These were cultivated like corn for two years and then left to themselves after two or three trimmings on the catalpas when the branches were young and tender. One year I planted an acre of catalpas, which I had raised mostly from seed bought from a dealer, from whom I purchased enough to finish out the acre of yearling trees that I had not been able to raise myself. The next year, feeling that locusts were native to this country while catalpa was not, and not being well pleased with them, I raised locust from seed and planted the other acre with locust seedlings. At a 5x8 planting it takes about a thousand seedlings to do an acre. With the ground prepared, my wife and I can, and have, set an acre a day. The oldest of my plantation is six years now, with a maximum height of 15 feet, greatest butt diameter 4 inches. Have never estimated their value, nor attempted any fire protection, as fires are very rare here. Am satisfied it is as profitable a crop as can be grown on the ground over a term of years and there is but little work connected with it.

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The Women's Exchange

This is the farm women's *own* department—for them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address
WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

JANUARY 15.—Do you utilize the culls from your orchard and vineyard—apples, peaches, pears, plums or grapes—and if so, how do you do it? Do you consume all these cull products at home or do you have some to sell, and if so what prices and profits do you get from them? Limit, 250 words.

FEBRUARY 1.—In what ways during the past year have you made extra spending money for yourself or for some special purpose? Describe fully any method which you have found particularly profitable, especially any new plan.

FEBRUARY 15.—Tell us about keeping summer boarders. What things do you do which seem to please them the most? How much do you charge a week and do you find it a profitable undertaking?

Get your contribution in early If it does not reach us at least 15 days before the date of issue, it will be too late.

Have you made or lost money by raising turkeys, ducks, geese or guineas?

MISS F. M. T., New Brunswick, N. J.—"Fools rush in where angels fear to tread," was undoubtedly the sentiment of a man who bid against me at an auction where I secured my first pair of turkeys, for, when my bid of $15 "raised his out," he said as he turned away disappointed: "I wouldn't give you twenty-five cents for all the turkeys you'll ever raise." But "nothing venture, nothing have," is my motto, and as a result I have raised and sold many beautiful White Holland turkeys.

My present flock of 23 is headed by a 40-pound tom which won first prize at Madison Square Garden Show last January. Many of my hens are birds which won first at Chicago, Boston and New York. I am careful never to in-breed. The turkeys roam over 10 acres and secure much of their food in that way.

EXPENSES.

Feed	$17.99
Advertising	3.35
New stock	25.00
Expressage	2.03
Shipping crates	.80
Total,	$49.17

RECEIPTS.

Stock sold	$57.08
Eggs sold	55.90
Total,	$112.98
Expense,	49.17
Gain,	$63.81

I intend to keep one gobbler and eight hens as breeders, which leaves 14 birds to sell. As I do not expect to dispose of any bird under $5 (some ought to bring double and treble that), I ought to add at least $70 to the credit side of account. I sold eggs for from 35 cents to $1 each, according to quality of hens.

Miss M. S., Penn Laird, Va.—Last winter I purchased two pure-bred Mammoth Bronze turkey hens and one tom of the same stock, paying $12 for the trio. Last spring one of the hens laid 19 eggs and hatched 16 poults, rearing 14 of them. The other hen laid 21 eggs and hatched 17 poults, rearing 15 of them. Outside of about eight or ten dozen eggs which I fed them when little, they cost me practically nothing to raise. When about six weeks old they seemed to prefer the insects of the fields to my feed, and I ceased feeding them. Just prior to Thanksgiving I sold all of my raising but two (27 turkeys) for $56.40. I kept the original gobbler and two hens, as well as two of my own raising. The following expenses show my profits from $12 invested in turkeys:

2 hens and 1 tom	$12.00
10 doz. eggs @ 20c.	2.00
5 bu. of corn @ 50c.	2.50
Total expense,	$16.50
27 turkeys sold	$56.40
Expenses	16.50
Profit,	$39.90

This leaves me a clear profit of $39.90 and five of my choicest turkeys left over for breeders. Raising turkeys has been a pleasure to me, and next year I expect to do still better.

Mrs. S. M. J., Kentwood, La.—I have raised a few turkeys every year for many years, but as my range is limited (a 40-acre farm) my flock is never as large as I could handle with profit if I had more range. We have a 2-acre orchard enclosed by a 6-foot picket fence. In this enclosure I put the birds before they commence laying, and make nests of old barrels and boxes in secluded nooks. They take these nests, which saves me the trouble of searching all over the fields, as well as loss by hogs and vermin eating the eggs.

When the turkey hens become broody for the first time I break them up; they will lay a second clutch, after which they are permitted to sit. After the little poults are hatched I give a whole grain of plack pepper to each one, and no other food for 24 hours; then I feed little and often, giving boiled eggs, curds, corn bread, bran bread and any kind of scraps, all seasoned highly with pepper. I provide shell, green feed, charcoal, grit, a dust bath and fresh water all the time, and keep poults out of showers and dews.

My banner year was 1911. That year I started with one male and three hens. I raised and sold 52 birds for 15 cents per pound, which brought $153, and used three at home, valued at $3. Feed for them cost me $8.40, and I paid a neighbor $2.50 for damage which they did to his nut stack. This gave me a profit, without counting labor, of $135.10, and I still had the three old birds for the next year.

Mrs. G. W., West Danby, N. Y.—The Penciled Runner duck has proven valuable to me as a utility bird, and as exhibition stock when I have had time to exhibit. Last year my birds were all over two years old and the yards were visited by rats and stray dogs, and thus many eggs were lost. Considering all, they did not do so badly. Eggs actually gathered were 110 from each duck; say 9 dozen at 30c per dozen, a fair average price. I have received from $1 to $3 for sittings—$2.70 for income; $1.80, or close to 15c. each per month was paid for feed. This was mash, composed of 200 lbs. bran, 100 lbs. wheat middlings, 100 lbs. corn meal, 50 lbs. oil meal and 50 lbs. meat scraps. This is mixed dry, then slightly dampened, feeding one quart to 8 birds. Cost mentioned provides grit, oyster shells and charcoal. Surplus drakes sold for enough to pay for cost of feed of breeding drakes. I raised 100 young ducks this year, so I reckoned 90 cents for work and the young stock plus extras on sittings for profit.

This same strain, when younger, gave me over 200 eggs each per year. Feeding now costs me around 30 cents per month per bird. Eggs are higher, too, but not too high to pay feed bills.

These eggs are rich in materials for building broken down tissues, and if it were better known that they are not as strong as many believe, the demand would greatly increase.

Miss M. B., Hillsdale, Mich.—When I started in the goose business several years ago I knew almost nothing of the relative values of the different breeds. A friend was breeding the White Chinese so I got eggs from her, and time has proved the choice a wise one. I bought 6 eggs at 15 cents each, and was able to raise two fine geese from them. In the fall I bought a pair of splendid young birds, making four good birds at a small cost. In the spring the three yearling geese averaged about 50 eggs apiece, and contrary to the advice of neighbors, they were used for setting. Several purchasers wrote that every egg hatched and they gave splendid satisfaction. What I did not set myself were sold at 25 cents each. In this way each goose made a profit of about $10. In July I bought 25 young birds from my friend. These sold at $3 each and I was able to clear between $25 and $30, besides keeping 6 or 7 for breeding stock Young birds will bring almost as much when fattened for market as when sold for breeding purposes.

The geese were turned into the orchard, where they lived entirely on grass and apples until about Thanksgiving, when the pasture became short. I have been so well pleased with the profits from them that as soon as possible I shall increase my flock to 100 laying geese, for I feel sure that they will furnish a good income at small expense.

Mrs. J. D. W., Doylesburg, Pa.—Last year I bought 10 guineas (6 hens and 4 roosters) and this summer I raised 60, which I sold for $1.40 to $1.65 per pair, bringing me $41.15 in all. Guineas being so high in price this year made it more profitable than usual, but it costs very little for feed. It cost me $17 for feed and the 10 guineas I started with.

When the guineas are one day old I feed them bread, which I dry in the oven until it is hard enough to pound into crumbs with a hammer. I feed that for one week, and then I mix the bread with small sized chick feed and feed that for two or three weeks; then mix small and large chick feed, use that feed until they are eight or nine weeks old; then feed cracked corn and wheat until they are old enough to eat whole corn. I think it is best to keep the guineas in an orchard or shady place while they are small, for the sun is vary hard on them.

Mrs. H. L. L., Leon, Va.—There is considerable profit in raising fowls of all kinds. I raise some of each named variety, and find that with little labor a nice profit is made. I prefer the solid Black turkeys, as they are less apt to take disease, and fatten more easily. This year I kept two hens and one tom. The two hens hatched 30 poults, from which I raised 20, and sold 10 of them for Thanksgiving at $3 each, and have 10 more worth $3 each for the Christmas market, which will make me a net profit of $60.

I fed them from cold scraps from the table and do not count it any expense at all, only a little time to feed them and the mother turkey gave them all the care they had. As it is best to let them roost out at night I left them fully to her care, and by feeding them at the same place every time they always came home to roost at night and were no trouble, but a clear profit.

Mrs. E. A. B., Delevan, N. Y.—I don't think we have ever lost money in keeping hens, ducks or turkeys, but as no accounts of profit and loss have been kept, I am not prepared to give figures. With geese, though no records have been kept, I can say that I believe they are profitable and safe for any one to raise. With turkeys, some years we have made out well, but other years, with the same care, they would die off, not raising enough young to pay expenses. There have been geese on the farm for nine years and they are hardy and do not require much care after the first week. The head of the family used to claim their droppings were poisonous, but I wrote to a standard farm paper asking if it was true. The reply was that they were close feeders and always kept close together, so that vegetation was killed where they fed, the same as any fertilizer would smother if too thick. Geese brought 18 cents a pound after sending to Buffalo alive and freight and commission were taken out. They averaged 11 pounds, which was lighter than most years. Some dressed at home weighed more. I think the great points are their hardiness over other fowls and the worth of their feathers.

Mrs. V. H., Duffy, W. Va.—I do not think I have lost much, if any, money in my experience of 26 years, by raising turkeys, as I usually have a fine flock of pure-bred turkeys to sell each fall, and they bring a fair price. Have sold them mostly at market prices, but have sold some to neighbors at a good figure. Last year I invested $3.50 in pure-bred Bourbon Red turkey eggs, and raised one gobbler and three hens from the eggs. This season I sold 29 turkeys at market price, which is not very good here, for the sum of $83, and still have four fine turkeys left, so I think it has paid me to raise turkeys. Have never raised geese or guineas, but have tried ducks and made a failure of them, but I raised a scrubby kind, little black ducks which laid very few eggs of a greenish tint. I think I could do well raising the kind that are raised here at present—Indian Runners—or the large White Pekin, but turkeys suit me best, for I am certain of a good profit for all time, trouble and expense of raising them.

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Mrs. C. H., Avoca, N. Y.—I had two turkeys hens given to me. One had a broken leg and the owner was going to kill her but I brought her home and she was soon made well, except for being lame. I was unable to tend to them, so they had free range. They did not hatch until late. One sat on 11 eggs and hatched 11 turkeys; the other sat on 11 eggs and hatched 10 turkeys. All lived until nearly fall, when foxes and hunters shot, injured and killed all except eight. These were shut up as soon as possible and fed just oats and barley and about three bushels of corn. Before Thanksgiving they were killed (six of them), dry picked and sold at 31 cents per pound. They dressed 68 pounds, returning to me $21.08. I call that pretty good for no more bother than they were. I intend to raise turkeys another year and shall do differently with them. My turkeys roosted in the woods this year, but another year I shall endeavor to make them stay at home. I hope to have either corn or wheat to fatten them on, as their flesh will look yellow and bring a better price.

What Our Farm Women Ask and Answer

Our farm women are evidently doing a lot without eggs and still having good results, as we have received a number of such receipts asked for by Mrs. T. A. B., of New Jersey. From those submitted we pick one sent by Mrs. A. M. S., of Moorestown, N. J.

COOKIES.—One cup butter, 2 cups of sugar, 1 cup sweet milk, 1 teaspoonful baking powder, nutmeg or caraway for spice. Mix with flour until quite stiff, rcll thin and bake quickly.

Mrs. L. H. D. recommends:

EGGLESS DOUGHNUTS.—One cup of sugar, pinch of salt, a dust of nutmeg, 2 cups milk (if sour 1 teaspoonful of soda; if sweet 2 teaspoonfuls of baking powder), flour to roll soft. Fry at once in hot lard

M. E. M., New York, suggests:

SALAD DRESSING.—Six tablespoonfuls vinegar, 6 tablespoonfuls milk, 4 tablespoonfuls melted butter, 3 heaping teaspoonfuls sugar, 1 heaping teaspoonful mustard, ¼ teaspoonful salt, 2 eggs.

Heat vinegar; beat yolks, sugar, salt and mustard, add milk and stir in vinegar; boil until it thickens, then add butter. Let cool, then stir in beaten whites of eggs. One tablespoonful of flour may be used for the eggs. More flour and a generous measure of butter takes the place of eggs.

Mrs. W. L. S., Pennsylvania, submits the following receipt:

EGGLESS FRUIT CAKE. — Chop enough apples to make 2 cupfuls; add 2 cupfuls brown sugar, 1 lb. raisins, ½ cupful lard, 1 cupful sour milk, 1 teaspoonful cinnamon, 1½ teaspoonfuls cloves, 1 teaspoonful soda, 1 teaspoonful baking powder, enough flour to make a stiff batter. Bake three-quarters hour in a moderate oven. Use fine disk on food chopper to make apples fine.

Mrs. M., Pennsylvania, sends the following receipt:

RICH CHOCOLATE CAKE.—Two cupfuls brown sugar, free from lumps, ½ cupful lard, 1 cupful thick sour milk, 1 teaspoonful soda dissolved in milk, 2 to 2½ cupfuls flour, 4 heaping teaspoonfuls cocoa and 1 teaspoonful vanilla; makes two thick layers and is fine if you don't make it too stiff.

HARD GINGERBREAD.—One pound of butter, 1 lb. of granulated sugar, 1 qt. West India molasses, 5 lbs. of flour, 5 cents worth of ginger, 4 teaspoonfuls cinnamon, 2 teaspoonfuls of cloves, 1 teaspoonful of allspice, 1 teaspoonful of mace, 4 teaspoonfuls of baking powder. Heat butter, sugar, molasses and spices quite hot, then add flour and baking powder; mix well, roll thin, cut and bake in steady oven.

Mrs. A. I. M., Pennsylvania, suggests cooking parsnips by themselves, with a piece of beef, or with salt, pepper and butter, or she may boil them nearly done in salted water then dip in egg and bread crumbs and fry; or she may roast them in pan with pork or beef, same as she would potatoes. They are very rich cooked alone.

Mrs. F., New Hampshire, mashes parsnips after cooking whole, seasons well, piles on a heat-proof dish, dabs with butter and browns top in hot oven. Also boils them, then slices and scallops as you would potatoes, and likes them very much these ways.

As a way to make house plants bloom, Mrs. F., of New Hampshire, says that if you will stir one teaspoonful of ammonia in a quart of luke-warm water and thoroughly wet the soil with it once a week. The result will be plenty of blooms.

Mrs. F. also says that white woolen knit goods should be washed in warm water with mild white soap, rinsed in two waters of same temperature and squeezed dry or run very carefully through wringer. Dry in sunshine in warm weather; by fire in cold weather. Place sweater on a coat hanger, pat and pin in place as it dries, to get desired shape. Stretch gloves two or three times while drying if they seem shrinking.

Mrs. S., of Pennsylvania, suggests that a vacuum washer be used for woolen knit goods. She also uses white soap, warm (not hot) water and does not rub the goods, but presses or uses the washer.

My little daughter's elderdown cloak has been cleaned successfully many times, writes Mrs. E. M. A., New York. While it was quite new I used to take a little flour in a large pan, rub it thoroughly into the coat all over, especially into the soiled spots, exactly as any one would wash it by hand in water. Then take the coat out of doors and, with a clean brush, carefully brush out every bit of flour. The flour will be dirty but the coat will not. If any soiled spots remain rub in more flour and brush again. This method leaves the nap just as soft and wooly as new elderdown, but this season we put the coat right into warm suds and wash precisely the same as any white wool goods. It looks real nice, too, but, of course, not quite as new and pretty as when cleaned with flour. The flour method is ideal, too, for soiled white furs or plumes.

Mrs. F., New Hampshire tells us that to can pumpkin, cut in squares an inch or smaller, place in clean glass jars, fill full of water, put on rubbers and place wire over tops of covers, but do not snap down side wire. Place on rack or cloth in boiler or kettle, fill in water to cover two-thirds depth of jars, cover tightly, bring slowly to a boil and boil steadily for three hours. Draw kettle to back of range, remove covers and snap down side wires. Leave in water until cool. This keeps perfectly and tastes like fresh pumpkin. It is also fine cut in very thin slices and dried like apples. Soak out over night and cook as if fresh.

Mrs. A. I. M., Pennsylvania, writes: I would like to have a receipt for Scotch cakes or Scotch wafers. I mean the little, crisp, dark brown cakes that look like ginger snaps. I have tried for years to find a receipt and all I can get is a mixture of white sugar, flour and butter, or a cake made of oat meal, and they are not what I want.

Mrs. K. A. B., New York, asks us how to treat old floors with some kind of crack filler and finish so that they will present a good appearance.

Mrs. E. C. T., New Jersey, writes: 1. Will you please give me a receipt for making paste for home paperhanging? 2. Please tell me how to wash cut glass and lamp chimneys to prevent them from breaking shortly afterward.

We would be glad to have our readers ask us questions, which we will endeavor to have answered in this new department.

Cooking Parsnips

MRS. S. M. JACKSON.

In the city markets one may find parsnips all the winter through, but they are not at their best unless left in the ground during the winter, to emerge in the spring crisp, sweet and with an aroma all their own. While there are numberless ways of preparing the parsnip for the table, it is only among the real country housekeepers that the genuine old-fashioned parsnip stew appears, as truly the harbinger of spring as the robin or the crocus. To make a stew put a half pound of fat salt pork, sliced, into an iron pot and cover with cold water. Let simmer until it begins to get tender, then add a couple of onions, sliced, and three pints of parsnips which have been scraped and sliced crosswise; simmer for about half an hour or until parsnips are tender, thicken the gravy with a little flour, add a tablespoonful of minced parsley and pour into a deep platter or vegetable dish.

If I have stale biscuits or bread convenient I spread a layer, toasted, in the dish. A garnish of parsley improves the appearance of the dish. Some of my northeastern neighbors serve parsnips with salt fish, and also hold them in esteem as one of the factors in a "boiled dinner;" that is, with cabbage, turnips, potatoes, beets, carrots and onions, seasoned with a chunk of corned beef.

Louisiana people like them boiled plain with a sprinkle of sugar and a dressing of butter or cream and pepper over them.

I boil them whole, without peeling, until they can be pierced with a fork. Take up, plunge in cold water, when the skins will slip off easily. They now may be sliced, floured and fried in pork drippings to a golden brown; may be dipped in molasses, rolled in cracker crumbs and fried; may be mashed, seasoned with salt, pepper and butter, made into croquettes and fried; may be mashed and to each pint one egg, one tablespoonful each of cream and flour added, and fried as fritters; may be used as a scallop with crumbs, or more simply, cut into dice and re-heated in cream sauce. My husband who is a semi-invalid, prefers them broiled on a buttered gridiron and dressed with cream, adding salt and pepper to taste. He is fond of a soup made by adding a pint of boiled, mashed parsnips to a quart of boiling sweet milk, add salt, pepper and butter to taste, and serve with slices of toasted brown bread. Do not let milk boil after adding salt or it will curdle.

Potatoes Enrich Maine Farmers

(Concluded from page 14)

and he intends to defend this title against all comers. We who live in other sections of this broad land can learn much from the Aroostook farmer. His farm is located on land newly rescued from the forest. Where the potato fields bloomed last summer, the fir and spruce held sway but a few years ago. The Aroostook farmer has not waited for his farm to wear out and become only partially productive, but has taken time by the forelock and has supplied his crop each year with an abundance of effective plant food; he has plowed deeply and carefully; he has thoroughly harrowed and he has sprayed honestly. Who of us will say that he does not deserve the rich reward which he is reaping?

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

7860.—Ladies' shirtwaist. Cut in sizes 34 to 42 inches bust measure. Figured and plain materials are used in making this waist.

8114.—Children's dress. Cut in sizes 2, 4 and 6 years. The correct way to make a day dress for a girl under six years of age is suggested by this design.

8120.—Ladies' house dress. Cut in sizes 36 to 44 inches bust measure. The waist has a diagonal closing and the dress is cut in one piece.

7835.—Girl's dress. Cut in sizes 4, 6, 8 and 10 years. This dress has a blouse that slips on over the head. The plaited skirt is attached to an underwaist.

8110.—Ladies' shirtwaist. Cut in sizes 36 to 42 inches bust measure. This waist has a wide box plait in each front and in each half of the back.

8104.—Ladies' apron. Cut in sizes medium and large. This apron is made with a wide bib front and the skirt section is very full.

8117.—Children's dress. Cut in sizes 4, 6, 8 and 10 years. The frock pictured is cut in one piece and slips on over the head.

8103.—Ladies' skirt. Cut in sizes 24 to 30 inches waist measure. This skirt is cut in two gores and has a deep yoke.

7419.—Children's night drawers. Cut in sizes 1 to 9 years. Outing flannel, canton flannel, madras and sateen are used for these garments in winter.

8100.—Ladies' dress. Cut in sizes 36 to 42 inches bust measure. This long-waisted dress has a two-piece gathered skirt, a pretty collar and long sleeves.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address
FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

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CHAPTER III.

A FITTING.

During the spring and summer Persis rose at half past five, and though she slept little the night following Thomas Hardin's disclosures, she refused to concede to her feeling of weariness so much as an extra half-hour. Her fitful slumbers had been haunted by dreams of apples, apples in barrels, apples in baskets, apples dropping from full boughs and pelting her like hail-stones, for all her dodging. There were feverishly red apples, gnarly green apples and the golden sweets, the favorites of her childhood, all of them turning into goblins as she approached, and leering up at her out of impish eyes which nevertheless bore a startling resemblance to those eyes in whose depths she had once seen only the reflection of her own loyalty. It was small wonder that Persis woke unrefreshed. "I declare," she mused, as she twisted her hair into the unyielding knob, highly in favor among the feminine residents of Clematis as a morning coiffure, "a few more nights like that would set me against apple pie for good and all."

But the developments of the day were soon to elbow out of Persis' thoughts the visions of the night. As she stepped out on the porch for a whiff of the invigorating morning air, her eyes fell upon a unique figure coming toward her across the dewy grass. In certain details it gave a realistic presentment of an Indian famine sufferer. In respect to costume, it was reminiscent of a bathing beach in mid-July.

"Of all things!" Persis gasped, one hand groping for support, while the other shaded her incredulous and indignant eyes. "Have you taken leave of your senses, Joel Dale?"

Her brother ascended the steps, wearing the expression of triumph ordinarily assumed in honor of his great hygienic discoveries. He replied to her question by another: "Persis, what do you s'pose is at the bottom of all human ills?"

Persis rallied.

"I don't know as I'd undertake to speak for 'em all, but I should say that a good nine-tenths was due to a lack of common sense."

Joel disdained to take up the gauntlet. "Persis, it's clothes."

His sister looked him over. Joel was attired in a pair of bathing trunks and a bath towel, the latter festooned gracefully about his body, low enough to show his projecting ribs. "If the style you're wearing at present was ever to get what you'd call popular," she agreed dryly, "I think it would make considerable trouble."

Joel again refused to be diverted. "Clothes, Persis, are an invention of the devil. The electricity of the body, instead of passing off into the earth as it would do if we went around the way the Lord intended, is kept pent up in our insides by our clothes, and of course it gets to playing the mischief with all our organs. As old Fuller says, 'He that is proud of the rustling of his silks, like a madman laughs at the rattling of his fetters.'"

"The sun is shining right on your bare back," remarked Persis acridly. "According to your ideas yesterday, you'd ought to be ready to drop dead."

Joel magnanimously ignored the taunt. Like some greater men, he had discovered that to be true to today's vision one must often violate yesterday's conviction. The charge of inconsistency never troubled him.

"Earth and air are stuffed with helpfulness, Persis, and the clothes we wear won't give it a chance at us. If the Lord had wanted us to be covered, we'd have come into the world with a shell like a turtle. Now, this rig ain't ideal because we've got to make some concessions to folk's narrowness and prejudice, but it's a long way ahead of ordinary dress."

"Joel Dale!" The grim resolution of Persis' voice warned the dreamer of the family that the limit of her forbearance had been reached. "I'm not going to stand up for clothes, though seeing that my living, and yours too, depends on 'em, it's not for me to run 'em down. But this I will say, as long as we live in a civilized land, we've got to act civilized. And as for having you show yourself on this lawn in a get-up that would set every dog in Clematis to barking, I won't. Go up-stairs and dress like somebody beside a Fiji islander, but first give your feet and legs a good rubbing. If you don't, the next thing you know, you'll be down with pneumonia."

Perhaps Joel's tyrannical rule in the household for the last twenty years had been due in part to his knowing the time to yield, a knowledge that would have prolonged the sway of many a despot. He went up-stairs in a rebellious mood which found expression in invectives against womankind, its blindness, its willfulness, its weak subservience to usage. But when he appeared at the breakfast table, the conventional shirt and trousers testified to the extent of Persis' authority.

Little was said during the progress of the meal. Joel, saddened by the lack of enthusiasm with which his great discovery had been received, maintained a dignified silence. Persis, always moved to magnanimity by triumph, forbore to emphasize her victory by obtruding on her brother's reserve. Not till Joel had been fortified by a hearty breakfast and had reached the advertising columns in his perusal of the weekly paper, did she venture to touch upon another delicate theme.

"Joel, I wish you'd open the shutters of your bed room and run up the shade to the top. If ever a room needed airing and sunning, that's the one. I'm going to give it a good cleaning as soon as I can take the time, but this morning I'm too busy. Annabel Sinclair's coming for a fitting at ten o'clock and that young Mrs. Thompson at eleven. And I'm as sur as I can be of anything but death and taxes, that Annabel will be late."

Persis' apprehension would have taken on a keener edge, could she have been favored at that moment with a glimpse of the patron of whose punctuality she

(Continued on page 22)

The "Clipper" Improved

Grain and Seed Cleaners

The Clipper is different in principle from all other grain and seed cleaners. It has been thoroughly tried out by years of constant use by thousands of the best farmers, the U. S. Department of Agriculture, Agricultural Colleges, Experimental Farms and hundreds of the leading seedsmen, seed corn growers, etc.

The Clipper is the only mill that has the "Vertical Blast", which weighs every seed and kernel, separating the light, shrunken, immature seed from the plump, heavy mature seed, 98% of which will germinate under test. This point alone makes much of the difference between crop success and failure.

No Mill Will Do Good Work Without the Proper Assortment of Screens

We furnish an outfit of 12 screens for cleaning and grading all kinds of seed, seed grain, seed corn, clovers, alfalfa, millet, timothy, flax, peas, beans, cow peas, soy beans, etc. And after the most careful study and tests in actual work, we guarantee this screen outfit to be the best that has ever been offered with any mill. There are screens for clover containing buckhorn or plantain, timothy seed containing pepper grass, for separating cockle from wheat and many other difficult separations.

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Made in Two Sizes: No. 1-B $25.00 No. 2-B $35.00 (Freight prepaid to any point east of the Mississippi River)

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The Clipper Cleaner puts success within your reach by insuring the Good Seed

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The war's devastation of European crops has caused an unusual demand for grain from the American Continent. The people of the world must be fed and wheat near $2 a bushel offers great profits to the farmer. Canada's invitation is therefore especially attractive. She wants settlers to make money and happy, prosperous homes for themselves by helping her raise immense wheat crops.

You can get a Homestead of 160 acres FREE and other lands at remarkably low prices. During many years Canadian wheat fields have averaged 20 bushels to the acre—many yields as high as 45 bushels to acre. Wonderful crops also of Oats, Barley and Flax.

Mixed farming as profitable an industry as grain raising. The excellent grasses full of nutrition are the only food required for beef or dairy purposes. Good schools, churches, markets convenient, climate excellent.

Military service is not compulsory in Canada, but there is an extra demand for farm labor to replace the many young men who have volunteered for the war. The Government is urging farmers to put extra acreage into grain. Write for literature and particulars as to reduced railway rates to Supt. of Immigration, Ottawa, Canada, or

F. A. HARRISON, 210 North Third St. Harrisburg, Pa. Canadian Gov't Agt.

Read This Before You Buy a Tractor

IF you could be sure you were getting the right tractor—a good reliable, economical machine—wouldn't you buy one for this Spring's work?

You have hesitated to choose from the many offered because you could not be sure that the tractor you bought would be the best one for you. That is the policy of a good business man.

The two claims made for most tractors are these—That the tractor will do your work and that it runs on kerosene. These two features are vital. They should be guaranteed, not merely claimed.

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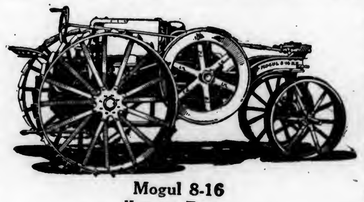
Mogul tractors are guaranteed to do good serviceable work and to operate successfully on kerosene. The order blanks contain a warranty to that effect giving you the written guarantee of a responsible Company.

What better assurance than this can you get?

Buy a Mogul tractor—a tractor built to operate on kerosene; that does operate successfully on kerosene; that the Company guarantees to work on kerosene; making that guarantee in the printed warranty that you keep when you order.

Mogul 8-16 is without doubt the most popular and successful kerosene tractor on the market to-day, and no wonder. It has a simple, one-cylinder, slow speed, kerosene burning engine with crank case completely enclosed to keep out dirt. Hopper cooled. Starts and runs on magneto. Mechanical oiler takes care of all engine bearings. No gears to shift. Chain drive. Travels at correct plowing speed for section where sold. Turns in a 10-foot radius. Does all the heavy field work that horses are used for, and any belt work up to 16 H. P.



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Because Mogul 8-16 is so popular, it is not always possible to make quick delivery. Now that the kerosene burning feature is guaranteed, sales will be still larger. Don't wait. Start now to investigate. Your order will have to be placed soon to insure delivery in time for the first good plowing days of Spring.

International Harvester Company of America (Incorporated)

Chicago U S A

The Practical Farmer Live Stock and Dairy Section

EDITED BY W. H. TOMHAVE

The Fifteenth International Live Stock Exposition

After two years postponement, on account of foot-and-mouth disease, the International Live Stock Exposition was held in Chicago, December 2-9. It was pronounced the largest and most successful show ever held in America. The International is regarded as the final show of the year, where the winning herds and flocks from the various fair circuits come together for a final rating. Live stock is shipped here from all sections of the United States and Canada. The show is a great educational institution, where people may study the results of judicious and careful breeding and feeding of pure-bred live stock. The attendance this year was larger than at any previous exposition, which indicates the general interest in live stock development.

The show is confined entirely to meat-producing animals, both breeding and fat classes, and draft horses, with light harness horses shown for the evening performance. Practically all breeds of beef cattle, sheep, swine and draft horses were represented by well filled classes. The judging began on Monday and continued well through the week with the final classes disposed of on Saturday, the last day of the show. Some of the classes were so large that it was practically impossible to handle them in the large arena of the Dexter Park Pavilion.

Most of the judging was done by breeders from the United States. The single judge system was followed in most classes and certainly seems more satisfactory than the committee of three which is still used by some of the breed associations. The Shorthorn Breeders' Association made a new departure and secured Senor Pages, of Buenos Ayres, to judge the breeding classes of Shorthorns. His judging met with general satisfaction, and he seemed to pick the favorites of the ringside. The grades and cross-bred steer classes, and the championship classes were judged by Senor Duggan, of Buenos Ayres.

The individual fat steer show was made up largely by exhibits from the agricultural colleges of the United States. These ranged from California in the West, and Pennsylvania in the East. A few steers came from the herds of breeders, but they were not as numerous as in previous years, possibly on account of the brisk demand for breeding bulls during the past few years. In the steer show the grades and cross-breds appeared in the largest number, followed by an equal number of Aberdeen-Angus and Shorthorns. The Hereford steer show was small, only about 16 head being on exhibition. A great deal of interest usually centers on the grand championship contest in the steer classes. This year the South American judge found him in California Favorite, a cross-bred 14-months-old calf exhibited by the University of California. This was a remarkable calf and a general favorite for the coveted prize. He weighed 1130 pounds at the time of the show, and was well finished. The calf was sired by a Hereford bull and was out of a Shorthorn cow. He combined the blood lines of two prize winning show bulls of the respective breeds. The reserve grand champion steer was also shown by the University of California in a 2-year-old Aberdeen-Angus, named California Jack.

It was a great show of breeding cattle. In numbers and quality it has never been surpassed by any show in this country. The Shorthorns led in numbers, and the younger classes were exceptionally large. In one class 83 head appeared before the judge and every animal was a credit to the breeder. In the Shorthorn show the grand champion bull was shown by Bellows Bros., of Missouri, in Village Supreme. Grand champion female went to Carpenter & Ross, of Ohio, on the junior yearling heifer Lady Dorothy.

Village Supreme, Grand Champion Shorthorn Bull at 1916 International

The Aberdeen-Angus breeders brought forth a great show of breeding cattle; while not quite so large as the Shorthorns it was one of the best black cattle shows ever staged in America. Most of the exhibits came from the corn belt states, although several herds came from the Pacific coast and one or two from the South and East. The grand champion bull prize was awarded to C. D. & E. F. Caldwell, of Burlington Junction, Mo., on Ephistos, who later topped the Angus sale at $4500. Grand champion female was awarded to Caldwell & Sons, of Ohio, on Hilldale Pride.

The Herefords, as usual, made a magnificent show, with all the classes well filled. Herds came from nearly every section of the United States to battle for the final honors of the year. Bocaldo 6th, a 2-year-old bull shown by R. H. Hazlett, of Kansas, who has never been defeated, was awarded the grand championship. Female championship went to E. H. Taylor, of Kentucky, on the aged cow Juliet.

The Galloways, Red Polled and Polled Durhams appeared in smaller numbers, but made a creditable show in nearly every class. Several herds of milking Shorthorns were shown and brought out excellent representatives.

The carload lots of cattle were not as numerous as in previous years, and hardly as well fitted. This was probably due to high cost of grain feed and the uncertain conditions that have prevailed during the past two years on account of foot-and-mouth disease. There were only three carloads of feeders, where in previous years a large number have been shown. The grand champion carload of cattle was shown by E. P. Hall, of Illinois, who won on a load of yearling Aberdeen-Angus.

SWINE SHOW.

The swine show consisted of breeding animals and fat barrows of the various breeds. Some of the fat barrow classes were well filled and made a strong show. In other classes the entries were not so numerous. The swine show, both fat and breeding classes, had a number of exhibitors from the eastern part of the country, and in each case were well up in the winnings, showing that there are a number of strong herds in the East. Space does not permit a detailed report of the winnings in each class, but it may be of interest to enumerate the breed champions in the different classes and grand champion barrow of the show. The grand champion barrow was a Poland-China and shown by H. B. Francis, New Lenox, Ill.

In the Poland-China classes Sam McKelvie, of Nebraska, won the champion on a 12-months-old boar. Female championship went to B. F. Dorsey & Sons, of Illinois, on a junior yearling sow.

Berkshires—Grand champion male, Hood Farm, Lowell, Mass., on an aged boar. Female championship, Hamilton Farms, Gladstone, N. J., on an aged sow.

Chester Whites—Grand champion boar and sow both by H. T. Crandall, Cross City, Mich.

Hampshire—Grand champion boar was won by Wickfield Farm, Cantril, Ia., on an aged boar. Female championship went to J. Crouch & Son, Lafayette, Ind., on an aged sow.

Duroc-Jersey—Championship boar won by Thomas Johnson, of Ohio, on an aged boar. Female championship went to Ira Jackson, of Ohio, on a yearling sow.

SHEEP SHOW.

The exhibit of sheep was probably one of the strongest ever held. Flocks came from all sections of the United States and the Canadian sheep breeders brought over a few excellent flocks. The fat wether classes were the largest that have assembled at the International for some years. This is in part due to the increased interest in sheep husbandry in the United States. Many of the fat wethers came from agricultural colleges, but they found strong competition in every class from breeders. The champion fat wether of the show came from the farm of Jess Andrews, West Point, Indiana.

HORSES.

That the American farmer and breeders of draft horses have not lost faith in the industry was indicated by the splendid show of pure-bred horses. Practically no importations have been made in recent years, so that most of the animals were home bred. They were in the ring in large numbers and of splendid quality. The seating space on the side of the arena where the horses were judged was taxed to capacity all the time while the judging was going on. The Percherons, as usual, were entered in the largest number, but Clydesdales, Belgians, Shires and Suffolk were out in numbers never before equalled at the International. On Tuesday a public sale of pure-bred Clydesdale horses was held, which averaged nearly $700 per head, indicating a healthy demand for good horses.

CARCASS CONTEST.

A carcass contest of cattle, sheep and swine is held each year. The animals are slaughtered in one of the packing houses and later judged. Ohio State University won grand champion carcass on a yearling Angus steer bred by the University. The steer dressed 63.41 per cent. and was sold at 40 cents per pound. The grand champion swine carcass was won by the University of Illinois on a Berkshire weighing 444 pounds and dressed 87.39 per cent. It was sold for 13 cents per pound. The grand champion sheep carcass was won on a lamb carcass weighing 50 pounds; the dressing percentage was 55.55. The carcass came from a pure-bred Southdown bred and exhibited by Hearts Delight Farm, Chazy, N. Y. It was sold at public auction for 60 cents per pound.

SALES OF FAT CATTLE.

The grand champion steer of the show, California Favorite, was sold on Thursday, to The Sullivan Packing Company, of Detroit, Mich., at $1.75 per pound. The steer weighed 1130 pounds and brought his owners $1977.50. This is the record price paid for a grand champion of the show. The previous record was held by the steer Advance, champion of the first International held, in 1900. A new record was made on carload lots. The champion load of cattle were sold to Wilson & Company, Chicago, at $28 per hundred. The

previous high record was made in 1906, when the champion load of cattle sold for $17 per hundred. The average of all the carloads on exhibition was over $15 per hundred, or considerably higher than any previous year. The individual steers were sold on Saturday, Dec. 9th and made a higher average than at any previous show.

The grand champion carload of lambs sold at $21.50 per hundred, which establishes a new record on lambs. The champion load of hogs sold at $11.75 per hundred.

PURE-BRED CATTLE SALES.

Auction sales of pure-bred breeding cattle were held during the week of the show. High averages were secured for all breeds that staged a sale. This indicates the confidence of the American public in the future of the beef industry. The Aberdeen-Angus sale was held on Wednesday; 53 head were sold at an average of $680 each. The top of the sale was the grand champion Angus bull Ephistos, purchased by Fred Roberts, of Atlantic, Iowa, for the sum of $4500.

The Shorthorn sale was staged on Thursday. The average for 56 head was $958.66. Maxwalton Pride, a 3-year-old bull bred and consigned to the sale by Carpenter & Ross, of Ohio, sold to the Maxwell Miller Company, of Colorado, for $6600.

The Hereford sale was held on Friday, at which an average of $1467.84 was secured on 51 head. The 2-year-old bull Woodford 6th, consigned by Col. E. H. Taylor, of Frankfort, Ky., was purchased by Senator Camden, of Versailles, Ky., for $15,100.

BOYS' AND GIRLS' FEEDING CONTEST.

A new feature of the show this year was the boys' and girls' feeding contest. A special class was provided for steers fed by young people in different parts of the country. A large number of entries were made in each class. Such work will do much to stimulate interest in cattle feeding and must be regarded as an admirable line of educational work. The inspiration which these young people get from such a contest will mean much to the live stock industry of the future.

STUDENT'S JUDGING CONTEST.

The first day of the show is set aside for the judging contest by teams from the agricultural colleges. This year fifteen teams of five men each from the colleges in the United States and Canada participated. They were required to place three rings each of cattle, sheep, swine and horses. The college team from Indiana won first. The following is the rank and total score of each team:

Place		Points
1	Indiana	3970
2	Iowa	3950
3	Ohio	3877
4	Texas	3814
5	Kansas	3749
6	Missouri	3676
7	Kentucky	3523
8	Pennsylvania	3492
9	Nebraska	3468
10	Minnesota	3386
11	Virginia	3336
12	Arkansas	3219
13	Ontario	3204
14	South Dakota	3149
15	Massachusetts	3136

A Scrub Sire Never Pays

E. A. TROWBRIDGE.

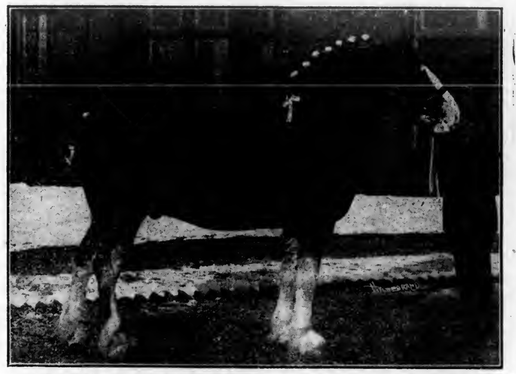
Quality becomes more essential to profit in live stock farming each season. When labor, land and feed were cheap it was possible to realize a profit on live stock of an inferior grade, but with the present high cost of these production factors and a constant discrimination on the market against the "scrub," it has become evident that the greatest profit can be expected only from live stock of good quality. It may be possible for the feeder or dealer to make a profit on inferior live stock if he is able to buy it sufficiently cheap and sell quickly, but usually some one has not realized the greatest possible profit when a "scrub" goes to market. If it is not the feeder it is the man who produced the animal.

At the Missouri Agricultural Experiment Station lambs sired by a $20 mutton ram and out of Western ewes weighed 2.54 pounds more at three months of age than lambs out of the same kind of ewes by a "scrub" ram weighed at four months. The well bred lambs were ready for market a month earlier, they ate only about one-half as much feed, and they sold for nearly $3 more per hundred than did the lambs by the inferior ram

Just recently two Western ranchmen are reported to have sold their cattle on the same market on the same day. Both used the same amount of national forest range per head and paid the same grazing fee. One had used good bulls to produce his cattle, the other had not. The good cattle brought $40 per head more than the poor cattle.

Whether the live stock is cattle, hogs, sheep or horses, the good ones are appreciated when sold and consequently bring higher prices and normally yield greater return. The most practical means of improvement is through the use of good sires, for the male may become the parent of from 40 to 100 animals each year.

Missouri Agricultural Exp. Sta.



Grand Champion Clydesdale Stallion, Fairholm Footprint, at 1916 International

The Secret of Successful Stock Raising

CLIFFORD E. DAVIS.

All my life I have observed the way in which farmers treat their stock. I have seen horses and cattle on luxuriant pasture, and well fed, yet they were false in pulling, roguish, hollow ribbed and not doing well, while the owner wondered what was wrong. The true secret of rearing farm animals is kindness, of which there are two kinds. One springs from commercial interest and moves the farmer to supply all their physical wants, with an eye to their cash value, with a "There, curse yeh, take that." The other motive is a real love for the animal, be it hog, horse, sheep or cow, and regarding it as an individual, aside from its money value. Some men "holler the flesh off the horses," make the dog run the cows home, and chase the sheep with a bean pole. No wonder they do not get the best results. I have had stock of all kinds, and when you show an animal that you love it because of itself, I find that it will give you its affection in return and try to act and obey as you would have it. In the placid enjoyment of perfect confidence and lack of nerve shattering usage it will gladly do all it can for your prosperity, be it with labor or increase. Kindness pays in the horse stable, the cow stall, the sheep fold and the hogpen. The man who wouldn't get out of a warm bed on a bitter winter's night to let the dog into the kitchen, or give the pigs a forgotten bed will never reap the reward of goodhearted service. Some people think it an awful bother to renew the water in the chickens' pan on a hot day, or fill it with tepid water on a cold one; but it repays so much in satisfaction to both man and fowl as to be worth it. The horse or cow obeys the voice of the beloved owner quicker than that of the mere boss; and in moments of peril or storm this obedience may save life and disaster, and does save valuable time and trouble. It is only the man of sane, placid mind who is fit to train, drive or control any kind of live stock, and when such complete bond of sympathy has once been established the owner will never sell the animal to war buyer or cruel owner at any price. Kindness pays in a money sense, and doubly in our own soul's content.

Maryland.

Profits from Sheep Affected by Winter Care

HOWARD HACKEDORN.

The winter care of the flock is just as important as the careful cultivation of the corn crop. This is the growing season of the lamb crop to be harvested in the spring.

The condition or the amount of flesh the ewes are carrying must guide the feeder. Ewes in good condition need not be fed grain until about a month before lambing, when they should gradually be accustomed to grain. Ewes in thin or poor condition should receive from one-fourth to one-half a pound of grain a day. Straight corn is not the best grain ration. The grain feed should contain some of the blood and muscle building material. A ration of 6 parts corn, 3 parts wheat bran, 1 part linseed oil cake, by weight, has been proved very satisfactory at the Missouri Agricultural Experiment Station. A ration of equal parts by weight of corn, oats and bran is good.

The sheep should receive as much clo-

The Farm Liniment

Winter is the critical period for horses, cattle, sheep, hogs, chickens, in fact all the living assets of the farm.

The vitality required to resist cold and exposure draws on their reserve strength and long inactivity increases the danger from disease.

Because thousands of farmers have found many uses for Sloan's Liniment when emergency treatment was imperative, it has been aptly called the farmer's "veterinary" and has served him in this capacity for more than 30 years.

Your dealer has it in 25c. 50c. and $1.00 bottles. There is six times the quantity of the 25c. size in the dollar bottle. Full directions for its use with every package.

Sloan's Liniment KILLS PAIN PENETRATES WITHOUT RUBBING

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More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk. Prevents scouring and insures the early maturity of sleek, handsome calves.

It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 99 Waukegan, Ill.

Please mention The Practical Farmer in writing advertisers.

ver or alfalfa hay as they will eat. The amount of hay eaten can be cut down by use of corn silage or corn stover. Two pounds of clean, sweet corn silage can be used to replace about one pound of hay. Well cured corn stover is also relished by the ewes. Ordinarily there is little danger of the sheep eating too much of it if hay is fed once a day. The greatest danger of corn stover comes from making it the exclusive feed. Under this condition, compaction with other attendant troubles, will often result.

Clean salt and water should be kept before the flock always, and the sheep should always have a dry, well-bedded floor to lie on. The sheep should all be able to eat at the same time without crowding.

Winter Dairying

O. C. CUNNINGHAM.

Cows calving in the fall not only produce more butter fat, but produce the larger part of it at a time when it is most valuable. Probably the most profitable months for cows to freshen is October and the early part of November. In order to do this they should be bred during January or early in February.

Cows freshening in the winter can be turned out on pasture when the milk flow begins to slacken and needs the stimulation of succulent feed. The calf is carried through the winter on milk and by spring is able to make better use of pasture. On the other hand, a spring calf is carried through the pasture season on milk and has to be put on dry feed during the winter.

During the dry period the cow should be given a good ration so that she will be in good flesh when she freshens. This will improve the quality as well as the quantity of the milk. Just before freshening, the grain ration should not be too heavy and should contain plenty of bran. The bowels should be kept well regulated. If necessary, one to one and one-half pounds of Epsom salts may be used as a drench. The cow should have a period of rest of four to six weeks in order to give the best supply of milk during the period of lactation.

Ohio State College of Agriculture.

Making Concrete Posts on the Farm

E. W. LEHMANN.

Concrete fence posts are one of the concrete products that can be successfully made on the farm. Much of the farmer's idle time during the winter months can be put to good advantage in this work. There is nothing which detracts more from the appearance of a farm than a poor fence, and there is nothing which adds more to the appearance, efficiency, and life of a fence than good, durable posts.

To make concrete posts during the winter months precaution must be taken to see that the materials do not freeze before setting. A place for this work where there is no danger of freezing can be found on every farm.

There are certain requirements to obtain good results in making concrete posts that every user of concrete should have well in mind:

Use new cement that is free from lumps.

Use clean, coarse sand.

Use gravel or broken stone that is well graded; free from soft material, as clay, organic matter, etc.

Use enough cement A rich mixture of 1 part cement, 1¼ of sand, and 3 of broken stone not larger than ¾ inch, is best for posts.

Mix cement and sand thoroughly while dry.

Add broken stone and water and continue mixing. Concrete mixed for a period of five minutes is much better than when mixed for one minute only.

Proper amount and proper placing of reinforcing is essential. Four ¼-inch iron rods are necessary. Place these near each corner of the posts.

Have well-made forms. There are many good patented forms on the market, but home-made forms have given just as good satisfaction.

Clean and oil form with a heavy oil before pouring concrete.

Leave posts in mold for at least 24 hours. In damp weather a longer period is necessary.

Keep the posts moist the first week while curing. Allow them to season one month before using.

Handle concrete posts with care. They cannot be thrown from a wagon like wooden posts.

Missouri College of Agriculture.

Farmers' Co-operative Creameries

Farmers throughout Pennsylvania are being urged by the State Department of Agriculture to organize farmers' co-operative creameries as a means to control the products of the dairy farms during the different seasons of the year.

The field agents of the department have recently organized the farmers in the vicinity of Wysox, Bradford Co., and a co-operative creamery company has resulted. Steps along the same line are being undertaken in all sections of the state. The farmers through the agency of their own creamery have a steady market for milk and they are enabled to market their own butter and other products as a central agency and get more profits than through the agency of the middleman.

The creamery gives the farmer a local market throughout the entire year and he retains the skim milk for the farm for feeding purposes. Co-operative creameries have been a success in many sections of the state. The butter is sold on a local market and in the spring and summer when the milk supply is at its height the creamery is able to supply cream to large ice cream manufacturers at much better prices than are obtainable in small lots. The able management of such creameries brings the farmer a much better return his milk supply, as he receives the scale price for the sale of his milk and participates in the dividends of the creamery from the sale of the manufactured products.

In addition to the Wysox creamery the agents of the Department of Agriculture have recently organized marketing associations in White Horse, East Petersburg, Ephrata and Leolo, Lancaster county; High Rock and Hanover, York county; Elam in Delaware county, and in Easton, York, Coatesville and Reading.

Percheron Horses in the United States

Those who think that the automobile is sounding the death knell of the horse should take note of the fact that during this year 847 new breeders were added to the membership of the Percheron Society of America, which makes the total membership now in excess of 8000.

President E. B. White, in his address at the annual meeting of the Percheron Society recently held in Chicago, reviewed in a comprehensive way the healthy condition of the Percheron trade. He laid stress on the fact that the elimination of importations had led American breeders to give better care to weanlings, yearlings and 2-year-olds, and that dealers, purchasing Percherons in this country at earlier ages than had been the custom, had themselves been surprised at the splendid outcome of

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their American-bred colts, when given the same care and attention they had formerly given imported horses. He also called attention to the fee of $100 for registration of horses imported after July 1, 1916, stating that this had been passed by the board of directors in the belief that it was for the best interests of American breeders, in that it was calculated to discourage the importation of the poorer horses.

Secretary Dinsmore, in his annual report, stated that 9044 registrations had been made during the year, an increase of 6½ per cent. over the preceding year; 140 imported horses were recorded, but only 59 of these were brought over during the past year. Of the total registrations 2014 were registered from Illinois and 1772 from Iowa, so that these two states contributed 41.8 per cent. of the grand total. Ohio came third with 747 registrations, Kansas fourth with 653, and Nebraska fifth with 466 registrations. Transfer certificates issued during the year totalled 9463, an increase of 38 per cent. over the preceding year.

Illinois and Iowa lead in number of Percherons purchased, and most of the horses bought in these two states were bought within their own borders. Montana, at the other extreme, purchased 65 per cent. of her Percherons from other states.

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Water for Cows

T. HENRY WHITE.

When we purchased our farm fifteen years ago there was no water at the barn. During the winter it was necessary to turn the cows out so that they could go to the run in the meadow, and very often have to break the ice before they could get a drink. One of the first things we did was to remedy this condition by putting in a gravity water supply. We put in a ¾-inch galvanized pipe and had plenty of water in the barnyard for the cows and horses, and the stock appeared to do better by not having to drink such very cold water. Also when the ground was soft it saved tramping up the meadow.

Our next step was to install water bowls in the barn for each cow. When we realized that 86 quarts out of every 100 quarts of milk are nothing but water we wanted to give the cows every opportunity to get this water so as to put some white color into it and return it to us. With our present system she always has a fresh, cool drink before her.

The water is not freezing cold as it is in the run or the barnyard trough, so that the cows not only drink more, but do not have to take so much of their heat to warm it after they do drink it. There is no crowding and fighting over the water as there used to be, and each cow has her own drinking vessel, which eliminates any contagious disease passing from one to the other. That the cows appreciate all these things is proven by their increased milk production at this time of the year.

Pennsylvania.

Queries Answered

Heavy Coat of Hair.—H. W. H. J., Maryland, writes: "I have a little bay mare six years old. Two years ago she had the epizootic, and since then she has not shed properly; the old hair sticks tight and the new grows out through it, making a very heavy coat and causing her to sweat very easily. She is fat, but lacks her old spirit. I feed her on corn, oats, timothy and cowpea hay, and sometimes oats straw. What can I do to improve her condition?"

Your theory of a new coat growing through the old cannot be correct to any marked degree. The new hair cannot appear until the old one is shed, as the former is a fresh product of the hair follicle from which the latter has disappeared. A portion of the old coat and a portion of the new may be present at the same time. In order to encourage early shedding, see that the mare is thoroughly groomed twice daily and kept comfortable in cold weather. Also see that she is worked or driven regularly. Feed on good hay and rolled oats with a cupful of linseed meal daily. Also give her a feed of dampened bran twice weekly.

Horse's Leg Injured.—J. H. S., Virginia, writes: "I have a horse about 8 years old that got his left hind leg hung between two boards in the stall last August and hurt very badly. The injury is between the ankle and knee. It don't seem to be sore at all, but will swell up at night, and it has left a knot somewhat like a splint. Can you tell of anything that will do it good?"

Get a linament made of 4 drams each of iodine and iodide of potassium, and 4 ounces each of alcohol and glycerine. Rub a little of this well into the swollen parts every morning. When the horse is brought to the stable in the evening, hand rub the leg well and apply a woolen bandage, moderately tight, and leave it on until morning. Care must be taken to not apply the bandage sufficiently tight to check the circulation, but still tight enough to cause slight pressure to stimulate the circulation and prevent swelling. R.

Oil Meal for Swine.—S. E. A., Kentucky, writes: "I see mention made in feeding formulæ of oil meal. Is this what is known as cotton seed meal in the South? If not, what is it? Is cotton seed meal a safe feed for pregnant sows? How much cotton seed meal can I safely feed to a 200-pound hog the last month before butchering?"

Th oil meal referred to in textbooks and other literature for swine feeding has reference to the meal after extracting the oil from flax seed. It does not have reference to the cotton seed meal, which is the residue of cotton seed after extracting oil. Cotton seed meal is not regarded as a safe feed for swine. It may be fed in limited amounts for a short period without danger, but after being fed for a long time it seems to develop a poison in the system which quite frequently is fatal to the animal. I would not regard it safe to feed the cotton seed meal to swine at any time. T.

Other People's Business

(Continued from page 18)

was in doubt. Ever since eight o'clock, Diantha Sinclair had been opening the door of her mother's room at intervals of five minutes and closing the same noiselessly, after a brief survey of the figure on the bed. As the tenantry of field and forest apprehend the approach of some natural cataclysm, by means of signs imperceptible to man's grosser senses, so to Diantha the curve of her mother's shoulder under the sheet, presaged a storm. Her uneasiness was due to a horrid uncertainty as to which would anger her mother the more, to be wakened too early or to be allowed to sleep too long.

By nine o'clock, the second of the alternatives seemed to Diantha the more serious. She stole into her mother's room, and stationing herself by the bed, spoke in the softest of voices: "Mamma, your new dress—"

The opening showed a tact creditable to her years. After all, it is one thing to be wakened by the crashing of a boarding-house breakfast gong, and another to be roused by the music of a harp. Annabel opened her eyes with a sense of something agreeable on the way, and Diantha promptly acted on her advantage.

"Mamma, you are to try on your new dress at ten o'clock, and it's nine already."

"Nine!" moaned Annabel. "You should have called me before." Yet she made no effort to rise and after a moment added sharply. "What are you waiting for? Can't you see I'm awake?"

Diantha scurried like a rabbit, and her mother turned on her pillow for another half hour, an indulgence she would not have ventured under her daughter's observant eyes. Like many people who defy public opinion in large matters, she was acutely sensitive to criticism over trifles. Aspersions of her character she accepted philosophically, almost complacently, indeed, because of her inward conviction that they were indirectly a tribute paid by jealousy to her superior fascinations. But a suggestion that a dress was unbecoming would make her unhappy for days.

Her first act on rising was to run up the shade, in order to benefit by the full light of the morning sun. Then for some minutes she studied her reflection in a little hand mirror which gave back to her view a face rapt and absorbed. With Annabel this rite was a substitute for morning prayer, and it brought her a peace not always secured by equally sincere devotions. Diantha's willowy height woke in her a sense of exasperat-

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The Practical Farmer

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FIRST PRIZE ARTICLE

How I Reformed a "Disreputable" Orchard

By GEO. B. KEEZELL

Promise of Reward for Careful Methods

I AM not a specialist in fruit culture, but a general farmer. What I have to say on the subject is from the standpoint of the farmer who finds himself the owner of an orchard too large for family use only, and yet not large enough to be set aside as a special business, but handled in connection with the manifold duties the general farmer finds to occupy his time. By way of digression let me say, I live in a section where the growing of fruit on a commercial scale is of recent date. The application of scientific and modern methods of fruit culture have demonstrated the fact that our soil and climate are peculiarly well adapted to the production of fruit of high grade.

A great many orchards have been planted in the last ten years, and the production of apples and peaches on a commercial scale is now a firmly established industry. These orchards have been planted with high-class nursery stock of the best commercial varieties, Stayman and Old Virginia Winesaps, York Imperials, Mammoth Black Twigs and Grimes Golden predominating. The planting has been in the most approved manner. The holes are usually dynamited, so as to give the root system the best opportunity to develop and force a rapid growth of the tree. One-third of a half-pound stick of 40 per cent. dynamite is usually enough to secure a good preparation to plant a yearling tree, which is the age preferred. This method of preparing the ground for planting is rapid and not very expensive. A hole punched 18 inches deep with an inch iron rod, a third of a stick of dynamite, 18 inches of fuse and a primer to explode the dynamite are the outfit. If the hole is properly tamped shut over the dynamite, the explosion will usually thoroughly pulverize the ground two feet or more deep and some two or three feet in every direction around the hole made by the rod.

Too heavy a charge of dynamite is likely to make large cavities, into which the dirt will settle irregularly. Care should always be taken when setting the trees to guard against this, and to close these cavities.

Proper pruning and cultivation should follow planting. The cultivation and crops planted should be for the purpose of helping the trees. The legumes should be the principal crops, so as to enrich the soil and keep it in the best condition for the young trees to make vigorous growth. The pruning should be carefully done and the tree trained with reference to two essential points—plenty of sunlight for every part of the tree, and the limbs so spaced and shaped as to bear their weight of fruit without breaking or splitting off.

Spraying to prevent or control the scale is of first importance in both the young orchard and in the old. Next in importance is spraying to keep the foliage healthy and to control the fungous diseases. Orchards will not make growth or bear fruit where leaf blight, "frog eye," cedar rust, etc., are prevalent. No tree can grow as it should unless its foliage is healthy, nor can fruit of good flavor or high quality be grown on trees with unhealthy foliage, or on trees that do not retain their foliage until the fruit is fully matured.

I have planted and raised both apples and peaches and my success in growing young trees (in a small way) has been very satisfactory. My greatest success, however, has been in dealing with an old orchard which had become thoroughly disreputable. I took this orchard in hand eight years ago, resolved either to improve its appearance and condition or to cut it down. This orchard occupies about seven acres, of which about four acres were planted with modern commercial varieties twenty to thirty years ago; the

A Well Cultivated New Jersey Pear Orchard

other three acres are nondescript varieties, planted from forty to sixty years ago; some of these varieties, however, are very good.

This orchard had been farmed occasionally and a crop of some kind grown on it. For a number of years before I took it in hand it had been in sod. Prior to this there had never been one hundred dollars worth of apples sold from it in all of its existence.

Eight years ago I decided to try modern methods on it. The first thing I did was to give it a thorough pruning. When this was finished it looked as though what was cut out was more than what was left. Next the sod was plowed—not very deep—with a two-horse mould-board plow, then thoroughly harrowed and given an application of about 600 pounds per acre of a good commercial fertilizer analyzing about 2½ per cent. ammonia, 12 per cent. phosphoric acid and 8 per cent. potash. No crop was sown or planted this year, but the orchard received frequent harrowings. That year the orchard was sprayed but once. the application being Bordeaux and arsenate of lead applied after the blossoms had fallen. It should have had two earlier sprayings, one while the trees were dormant, for scale, and one with Bordeaux or lime-sulphur just before the blossoms opened, to control leaf troubles. The one spraying, however, made a marked improvement.

I have cultivated each year since with spring-tooth harrow and disk, grown cowpeas several years and left them on the land; sprayed each year three or four times, usually with lime-sulphur—one gallon to eight of water while trees are dormant—for scale, and three gallons to one hundred later on with the addition of five pounds arsenate of lead to control codling moth and leaf trouble. I prune each year, taking out all dead or falling timber and surplus water sprouts. I have given several applications of commercial fertilizer and some barnyard and stable manure.

The result is, the old trees have apparently renewed their youth—the younger trees have become very vigorous and all have given good crops of first-class apples, which have been sold at good prices.

I thin the fruit and at packing time there is but little that does not go into the barrels as first-class.

I have had fair crops each year, and four of the eight years bumper crops.

After using most lavishly for family use of a much higher grade of apples than we ever had before, or than I believed it possible for this orchard to produce, the sales in the orchard have averaged each of the abundant years before this year, more than $150 per acre, of the commercial part, the buyer furnishing barrels and packing the fruit. This year the returns for the commercial part were more than $1000, or over $250 per acre.

The soil on which this orchard is planted is sandstone overlying limestone. It occupies a sloping hillside along the base of which runs a railroad its entire length. It is skirted on its opposite side by a public road and is therefore much in the public view. So changed is its present appearance from its appearance eight years ago, when the leaves fell off the trees before the apples were nearly matured, that it is noticeable by every one. Then I was asked very frequently what was the matter with my orchard that it looked so bad. Now it is complimented as one of the best orchards in this vicinity.

My experience teaches me that my success was not due to any one cause, but because I pruned, cultivated, fertilized, sprayed and thinned I got results. Fifty dollars a year will pay for spraying—cost of labor and materials. I use a power sprayer. Cultivation, fertilizers and pruning will not average over $75 a year.

The work done in this orchard is by men employed on the farm and is managed so as to interfere as little as possible with other farm duties.

My principal commercial varieties are Old Virginia Winesaps, York Imperials, Mammoth Black Twigs and Grimes Golden. This year I gathered Winesaps and Baldwins from trees planted more than 60 years ago that were as fine as ever went into a box or barrel.

Virginia.

SECOND PRIZE ARTICLE

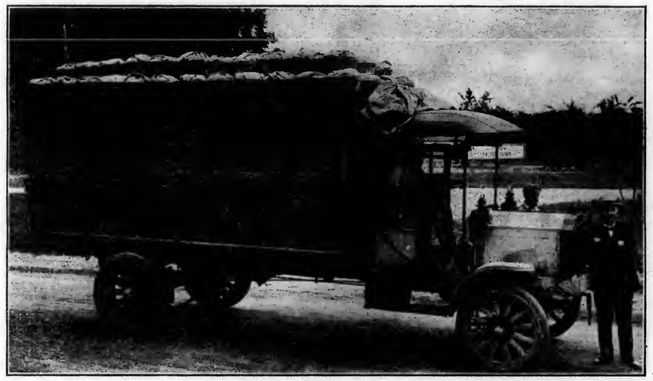
Growing an Orchard Under Adverse Conditions

JOSEPH E. FISCHLER

OVER thirty years ago the writer came in possession of 54 acres of land. Six acres were cleared, about 20 acres were rough pasture land, covered with pine stumps, logs and stones, the balance being a cut-over bark slashing. There were no buildings and no water. The writer had about $500, one horse and one cow, and, of course, thought he was rich. The first thing I had to do was to erect farm buildings and dig a well. At the end of the first year I found myself $2500 in debt and had very little cleared land.

From a boy up my ambition was to grow an orchard, so I bought a stump puller and pulled the stumps out of two acres, cleaned the stumps and stones off the land and plowed it. The following spring I planted 50 apple trees. What was wrong with these trees the writer does not know, but they all died. In the fall I planted 50 more on the same land; these all lived and grew fine. As fast as I got land stumped and cleared off I planted more trees, until I had about 600 growing—400 apples, the rest pears, plums and cherries.

The writer was $2500 in debt before he commenced to pull stumps and clear land. The trees were bought from the much despised tree agent (and I want to say had it not been for the agent I would not have an orchard now); he would come and take the order and another agent was appointed to do the delivering and collecting. The writer had no income except what few dollars he could earn working for others, and many times had a lot of costs to pay before he could pay for the trees. Nevertheless I always believed those trees would help me out in time, and I expected to plant a thousand apple trees. But there came a time when the tree agent would not stop at our house and I could no longer buy any more trees, so I just kept at work clearing and stumping the land until it was all cleared. In the meantime land depreciated in value so that this farm that cost me over $10,000 could not be sold for the original mortgage of $2500. From 1890 to 1905 the writer had all kinds of financial difficulties, but I never quit, doing all I could for the orchard. For many years before the general public realized that there was a fortune in this orchard my wife and children sold all kinds of fruit, apples, pears, plums, cherries and berries. For ten years, from 1896 to 1906, had we not had an abundance of these for sale we could not have lived on the farm, because creditors sold everything they could for from 10 to 15 cents on the dollar.



Motor Trucks are Solving Marketing Problems

PLANTING.

I always fitted my ground for potatoes and planted in the spring. Spring planting has proved most successful to me, and were I to plant another orchard I would plant in the spring. The first ten years I aimed to keep a green cover crop growing, to be turned under for cultivated crops, such as potatoes, beans and sometimes corn, but prefer beans and potatoes. My trees are planted 30 feet each way, but they are entirely too close. Were I to plant again I would plant 50 feet each way. In time I may have to cut out every other tree and that is hard to do. When planting, all broken roots should be cut off. The cuts should be made from the under side; this makes many small rootlets start out on each side of the cut. The top is cut back to three or five branches and these about 5 inches long. The hole should be large enough to allow room for all the roots. The top soil I saved to put and work around the small rootlets. Planted the trees about two inches deeper than they stood in the nurseries, and leaned the tops to the west a little. A close watch should be kept for borers during June and September. Kill the borer before he kills the tree.

SPRAYING.

Our sprayer is a two-horse one, furnished with two double-acting pumps, a large air compression tank, a pressure gauge and two extension rods. We have used it four seasons and find it O. K. My son and daughter and myself and team can spray our orchard—nearly 600 trees—in two days. When spraying for codling moth we use from one hundred and fifty to two hundred pounds pressure.

We do the dormant spraying for scale, oyster shell and bark louse when the buds commence to burst. We use the home-boiled lime-sulphur, and add about 6 pounds of arsenate of lead paste to 100 gallons of the mixture. This spraying answers two purposes, kills the scale and also kills 90 to 100 per cent. of the tent caterpillars. Since we have adopted the above plan we have very few worm nests to contend with. For codling moth we spray as soon as the petals fall, using 8 pounds of arsenate of lead paste to 100 gallons of water and 2 gallons of home-boiled lime-sulphur, and repeat again in 30 days.

I have never done much thinning, but expect to thin hereafter, as we find it pays to grow larger sized apples. Plums and cherries are sprayed when the fruit is about the size of a pea.

MARKETING.

We sell several hundred bushels of No. 1 Northern Spies, King of Tompkins Co. and McIntosh Red for $1 per crate at Wellsboro and other surrounding towns. But the most of the crop has been sold, for a number of years, in bulk, bringing from 80 cents to $1.25 per 100 pounds. Unless a very fancy stock is at hand this is a very profitable way to sell, as it does away with boxes, barrels, etc., and it cleans up the orchard; all except drops and ciders are taken, so when several thousand bushels are grown it does away with a lot of work. We had 2500 bushels this season. This makes the twentieth annual crop, ranging from 150 barrels the first crop, to 4000 bushels in 1912.

PRUNING.

Two can do the pruning much better than one, one man in the tree and one on the ground. The tops should be kept well opened to let in the sun and air. If a tree is kept well pruned less thinning is required. The best time to remove suckers is during June, when the first finger and thumb are all the tools necessary.

FERTILIZING.

I have used the sod mulch on part of the orchard and pastured part with pigs. I like the sod mulch system best. I have never used much commercial fertilizer. I believe 100 pounds of acid phosphate to one ton of stable manure would be very beneficial.

There is no better cover crop for this locality than rye and red clover, though I think hairy vetch would be good, but when my trees needed a cover crop I knew nothing about vetch.

VARIETIES.

We have Baldwins, Spies, King of Tompkins Co., Ben Davis and Hendrick Sweets for main crop. Greening, Fallawater, Hubbartson, Nonesuch, McIntosh, Winesap, Tallman Sweet, Wealthy, Wagoner and Sweet and Sour Harvest. These all do well in this locality. For commercial orcharding four or five of the leading varieties are much better than too many, for family use a lot of varieties are nice.

Pennsylvania.

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.

EDITORS
THOS. H. WITTKORN W. F. MASSEY W. H. TOMHAVE
A. E. GRANTHAM CHARLES A. McCUE
F. V. L. TURNER J. H. REED
EDWARD T. WALKER, Managing Editor

SPECIAL REPRESENTATIVES
J. C. Billingslea, 119-123 W. Madison St., Chicago.
708 Kresge Bldg., Detroit, Mich.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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JANUARY 15, 1917

Our Garden and Truck Number

THE March 1st issue of this paper will be our Annual Garden and Truck Number. Many of our readers have been accustomed to look forward with unusual interest to this number, which annually is devoted largely to the interests of gardening and truck raising, because of the unusually helpful and suggestive articles which are contributed by men of experience in these lines. This year's number will be no exception to the rule.

As is our custom, we invite our readers to contribute to this number, and we offer prizes for the gardening and trucking articles accepted for publication, as follows:

For the best article, $15.00.
For the second best article $10.00.
For the third best article, $8.00.
For the fourth best article, $5.00.

The kind of articles we want are such as tell the personal experiences of the writers in planning the home garden or laying out a successful campaign in truck gardening, with the writer's opinion as to the best varieties of vegetables to plant and his experiences as to the best methods in planting, cultivating, harvesting and marketing. The articles may cover a broad range of garden crops, or may take up some experience with a specific crop.

We have no desire to put any limit on the number of words in these articles, but would suggest that while we want "the whole story," a great deal of information can be put into from 1000 to 1500 words. Contributions should be addressed to the Editor of the Garden and Truck Number and should reach our hands not later than Feb. 8th at the very latest—and we will appreciate having them as much ahead of that date as possible.

Production per Man

IT appears that this year, more than ever before, it will be necessary for us farmers to uphold our reputation of producing most per man rather than most per acre, as is done in European countries. It will not only be profitable to do this on account of the world's shortage of food supply, but it will be obligatory on account of the increasing scarcity of farm labor. When all the boys were working with us on the farm and satisfactory hired help could be obtained at reasonable prices we did not worry much as to how we were going to handle the rush of work. Now that things have changed we must find other ways to accomplish the same results. Advertisements of the many different labor saving machines and equipment both for indoor and outdoor use now have a different appeal to us. Formerly two small implements each handled by two horses and a man could handle a job in its allotted time. Now that we only have one man for the same job we are interested in a machine for three or four horses, or a tractor, which he can handle and do the same amount of work, or possibly more than, two men used to do.

Only the men who have met and solved these problems can fully appreciate the advance made in the efficiency of farm machinery during the past twenty years. Very often, however, we farmers hesitate to spend money for improved machinery, because we figure that it will not return the cost price to us possibly the first or second year. We fail to realize that even if it only returns to us the interest on money invested and depreciation charges we might still make a good profit by getting the work done quicker and better.

The farmer who starts this year to buy improved machinery will have to pay more for it than if he bought it last year, on account of the abnormal conditions in the iron, steel, coal and allied industries. The good results which he will obtain from it, however, and the abnormal market prices for the products which it will economically produce for him will more than overbalance the increased cost.

Sign of a Business Farmer

WE hope that you have started the new year with a bank account, if you do not already have one. Possibly there is no other one thing which will give the town man as good an impression of you as to pay your bills by check. He at once recognizes that you are a business farmer and he will naturally wonder how much you have in bank and the extent of your credit. If you go to him and pull out a well worn wallet, with possibly only a few dollars in it, after paying several other bills, he will not be long in sizing up your pile and forming his opinion of you.

A bank does not charge you anything for a checking account; in fact, lots of them will pay you for the privilege of helping you keep your business affairs straight. You will find it very convenient to always have the right change, as you can draw a check for any odd amount. You can settle lots of your accounts by mail and save time wasted "on the road." Then, too, every check you give is a receipt, as it comes back from the bank endorsed by the payee.

In Switzerland six in every ten persons have a bank account; in Italy, four in every ten; in France, England and Germany twenty-five in every hundred; but in the United States only one in ten has such an account. We Americans are the greatest money-earners in the world, but the poorest savers.

In becoming a depositor the business acquaintances which you form at the bank will become valuable to you. A banker has been trained to see things at a different angle from what you do, and very often his advice on a contemplated move on your part will be worth having.

Your and Your Boys' Backs

SUPPOSING that you keep ten cows and three horses, have you ever figured that you will have to lift about 240 tons if you save in the stable one-half of the cows' and two-thirds of the horses' manure in a year and handle it three times? Ten men in our Experience Pool in this issue tell of ways which they have found to overcome some of this back-breaking work.

Experiments at Pennsylvania State College, in their 34-year fertilizer tests, have shown that twelve tons of manure distributed over two acres will prove more profitable than the same amount spread over one acre. This year when some fertilizers are out of the market and the others will cost more than formerly, it will pay big to stretch the manure as far as possible. Light applications are most evenly applied with a manure spreader, which also saves a lot of hard work. Agents for these machines have been known to put a silver dollar on the ground then drive over it while spreading and if no manure was on the dollar it belonged to the spectators. Needless to say the agents won more often than they lost.

The Ohio Station has proved that a concrete stable floor paid for itself in two years by the plant food saved, and that it was worth 75 cents to keep a ton of manure under shelter rather than expose it for three months in a barnyard, or the 75 cents could be saved by hauling it directly from the stable to the field. No experiment station, however, has proven how much these modern methods are worth to you and your boys' backs. You are a man, and needless hard work will possibly only affect you by tiredness, but too much of it will give the boy the wrong opinion of a farm and he will look for a job where more attention is given to efficiency and labor saving devices.

Modern barn equipment includes litter and manure carriers which are suspended from an overhead track and operate so easily that with one short lift the refuse is taken from the stable, run to the manure spreader, dumped, and you drive the horses to do the rest of the work. This is different from the uneven stables, dilapidated wheelbarrow and knee-deep barnyard methods of unprogressive farmers and adds a distinction to the work which acts well on everybody connected with it.

Our Prize Articles

THE four leading articlues in this our Annual Orchard Number, are the prize winners selected from the host of articles submitted in this contest.

After reading these four stories from men on the farm who have actually done things, we hope that you will agree with our selections. It was no small task to select four out of the large number submitted, and it was only after careful reading and much thought by our editorial staff that the prizes were awarded. The articles received covered a wide range of the fruit industry from the viewpoint of the commercial grower down to the owner of only a few trees. The four selected were not chosen only on their technical knowledge of the subject, but because of the way it was presented and the fact that they had the experience which enabled them to give the personal element, which is essential in a contest of this kind. Some of our contributors seemed to have the wrong impression in thinking that flowery speech and generalities would win over plain English and concrete cases. Several manuscripts were worthy of special mention and we will publish them later, paying the authors our usual rates.

Bulletin Helps for Farmers

One of the difficult problems which confronts the dairyman is maintaining the herd. The experiment stations have given much thought and attention to the raising of dairy calves, and only recently Purdue University has issued a valuable 104-page bulletin on the subject of "Skimmilk and Milk Substitutes for Calf Feeding." They have found the use of skimmilk so satisfactory that they encourage its use for this purpose unless its market value is above 30 cents per hundred pounds. When skimmilk is available, milk substitutes for dairy calves, they found, are of comparatively limited value. These experiments, conducted with 30 calves, showed that in order for a ration to be considered an unqualified success it should produce at least one pound of gain per day as an average for the first six months of the life of the calf. An average daily gain of 1½ pounds is not uncommon, although slightly above that which the average dairyman may expect.

A valuable 8-page bulletin for the hog raiser is Farmers' Bulletin No. 780, recently issued by the Department of Agriculture at Washington, D. C., on "Castration of Young Pigs." This publication contains six illustrations and describes fully the operation. It will be sent free to all applicants.

Poultrymen will be interested in Bulletin No. 87, just received from the Connecticut Agricultural Experiment Station at Storrs, Conn. It is a 40-page record of the fourth international egg laying contest recently completed. The methods of feeding and caring for the thousand hens and careful records of cost and results obtained are fully described and should prove valuable to every owner of chickens who is interested in keeping only those which are profitable.

Farmers' Bulletin No. 776, just issued by the Federal Department of Agriculture at Washington, is entitled, "Growing Cherries East of the Rocky Mountains." It contains 36 pages and fully covers the subject from propagating the trees to packing the fruit. A free copy can be obtained upon request to the Secretary of Agriculture at Washington, D. C.

"Home-Made Fireless Cookers and Their Use" is the subject of a 16-page Farmers' Bulletin, No. 771, just issued by the United States Department of Agriculture. It contains photographs and diagrams showing the construction and use of this labor saving device and a number of new and tested receipts which have been successfully prepared with it. The bulletin will be sent to any one who will ask the Secretary of Agriculture at Washington, D. C., for it.

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THIRD PRIZE ARTICLE

Experience With Strawberries

FRANK PLESSINGER

About ten years ago we bought and moved upon a small farm consisting of 30 acres of cleared land and 40 in timber.

The soil was very poor and run-down; much of it was covered with brush. It was really too poor to raise even a disturbance on.

Now we needed a cash crop—needed it badly—for we had used about all our money to pay for the old farm. The soil seemed well adapted to fruit growing and we planted quite an orchard of apples and peaches and began to grow strawberries in a small way as a cash crop. In April after we moved to the farm we planted 900 Klondike, Orem, Gardiner and several other varieties in a piece of ground which had been farmed the previous year and given a good coat of stable manure. Plants were set 2 feet apart and allowed to form matted rows. After giving clean culture all summer they were mulched with coarse manure late in the fall. This was parted slightly the next spring and the plants grew finely and were a beautiful sight at blooming time, but more beautiful a month later when the big red berries began to show along the rows. From this small patch we sold 576 quarts at 8 cents per quart, to a local ice cream manufacturer.

The crop was small because we had planted half the patch with varieties that were not adapted to our soil and were a failure. Yet this is the only way we can find out about a new variety and I have ever since followed the plan of testing out a number of varieties each year—a dozen plants of each kind is sufficient. No one can tell what kind will do well in any particular soil or locality without a test.

Those first berries were sold for a small price, because we had not yet learned how to sell our crop, but we know more about it now.

The next season we graded the fruit in two sizes, the larger, or No. 1, we decided should be sold at 12½ cents per box, the smaller size, No. 2, at 10 cents. Having decided to get "next" to the consumer, I loaded my spring wagon and drove to the nearest market town, 14 miles distant. I well remember that first morning when I stopped at the curb and opened up a crate of the large size. The berries were really fine, boxes well filled and neatly packed. Well, it was great to see the people gather round, examine closely, then begin to gather them up and carry away. The large ones went first, and such has been my experience since in the eight years that I have sold to those people.

We keep our prices the same year after year and aim to give our customers full quarts of clean berries "the same all the way down," and although berries can be shipped here and sold for much less than we ask for ours, yet we seldom lose a customer. We never ship berries away. This town of 1800 population takes all we can produce, yet this is not a manufacturing town.

Right here is where most of us "fall down;" we don't take pains in selling our crop after raising it. Many dislike retailing. At first it did not appeal to me, but I can now say I have never lowered my dignity in the least by "peddling" on the street. My customers get 100 per cent. in value and I get all of the consumer's dollar. There are hundreds of towns and villages where plenty of home grown berries can be sold in this and adjoining states.

Pennsylvania.

FOURTH PRIZE ARTICLE

Care of a Young Orchard

FRANK T. HAYNES

The most important time in the life of an apple tree is during the first seven years after being set, just as we are told that the years of growth in children and live stock are the most important; a mistake in treatment or a setback in the growth in all three cases means a decided loss. I have found in my experience that one or two-year-old trees set in an orchard need as near individual attention as it is possible to give them if we expect to get a uniform growth.

My experience has been chiefly with cultivated orchards. By comparing them with trees grown in uncultivated land, I have always been favorably impressed with the cultivated trees, especially during the first ten years of growth.

In setting out an orchard I find it very important to get the rows of trees straight and square, not only for looks, but for the greater ease in cultivating, and the less danger to the trees themselves, as they are much less likely to be injured by the team, plow, cultivator or harrow, if they are all in a straight line than would be the case if the row varied.

Some people stake out the orchard by means of boards or wires running from two base lines at right angles to each other. This is the method I have always followed, although I recently visited a large orchard that was laid out with a plow and I must say that the trees were in rows straight enough for all practical purposes. The method of laying out the orchard was as follows. The field was measured and staked along all four sides and along all high places where one could not see the full width across the field. Then with a pair of horses one man held the plow and one took each horse by the bridle and walked straight for the stake at the opposite side of the field. This was done in both directions and then the trees were set in the angle where the furrows crossed. This method not only served to locate the trees, but also helped in digging the holes, as very little hand digging was necessary after these two furrows were made.

In regard to dynamiting the holes for the trees, I have talked with quite a number who have set out trees with both dynamite and hand dug holes, and I have also tried both methods. While I find some very firm believers in dynamited holes, I find more in this section that have tried that method and can see no advantage in it over the hand-dug holes. In every case where the man believes firmly in the dynamiting I find that his soil is more or less clay or hard-pan, while the men who do not find any advantage in the dynamite have an open soil tending toward gravelly loam. This is the case with my soil.

When the orchard is set the first pruning must be done and at this time it is necessary to decide on the type of tree and the height of head that is wanted. I have adopted the method of heading at about 2½ to 3 feet from the ground. On a fairly good soil I have found that a one-year whip is fully as satisfactory to set as a two-year-old tree, especially if I wish to change the head from that made in the nursery. On the other hand, on poorer land where it is more difficult to get a tree to grow I have found that a thrifty two-year tree is more satisfactory than the one-year whip.

It is quite easy to throw a branch in any direction desired by pruning to a bud on that side of the branch for the terminal bud. In pruning the small branches where the wound is normally sure to heal in one year I have found it quite essential to prune quite near to a bud, and this will insure a smooth wound and will leave no scar or stub, which is so often the case if from one-half to one inch is left beyond the bud.

I think it is possible to prune too much during the first ten years in the life of the orchard. This is more apt to be the case after the third or fourth year than before that time. I have found, where a tree in good condition after being set four years is making good growth, that it does not require much pruning other than cutting out interfering branches and water sprouts. Indeed, I think it is apt to delay the bearing of fruit, if too much pruning is done at this time, as it tends to throw the energies of the tree into growth of wood rather than into the formation of fruit spurs and buds.

During the first three or four years of growth of the tree if other conditions are favorable the more the tree is pruned the more growth it will make, and during this time I have found that if from one-third to one-half of the growth is pruned off in early spring it tends to give a more branching growth and at the same time the growth is more stalky. During this time the main branches are being selected, and with this method of pruning it will give more fruit spurs near the center of the tree.

The cultivation during the first years in the orchard can easily be that of companion crops planted between the trees, but the welfare of the trees should always be uppermost in our minds. One minute of carelessness in cultivating or driving the team in the orchard may do injury to a tree that will never be overcome. It is very easy to drive too near to a tree so that either the horse may break the branches off or the harrow may rub off bark enough so that it will take four years to heal the wound. I have found it of great advantage to have a team that will stop at once when told, when working in the orchard, as a few feet means the difference between running down a tree and saving it when the team or implement is going straight for it.

I have not found it of any advantage to keep all weeds and grass cleaned away from the trunk of the tree during the growing season, but I do hoe the trash away in the fall, so that the mice will not find shelter there and girdle the tree during the winter, which would kill it unless promptly and carefully treated.

I have found that stable manure, if it is to be had, is a very good fertilizer for the young trees, about a bushel to each tree during the first few years, and more in proportion later. I have also used chemicals in connection with the manure, and a rule that has worked well with me was as follows: During the first three years apply about 2 to 4 ounces of nitrate of soda, depending on the growth of the tree; those that do not show a good growth requiring more. In connection with this I applied, before the potash salts were out of the market, about a pound to each tree of a mixture consisting of 3 parts (by weight) of muriate of potash and 5 parts of acid phosphate. At present I find wood ashes very good as a substitute, as they not only contain potash, but also have some lime.

By raising some kind of hoed crop, like small fruits, vegetables or even corn between the young trees during the first few years of their growth, the expense of cultivation and care of the trees can be met and often some profit be made besides, so that when the orchard begins to bear it has no debt to pay off.

Massachusetts.

Speed in Spraying

C. A. McCUE

In large orchards one of the most essential features in the spraying campaign is speed. This is especially so for the scab spray when the apple blooms are in the pink, and for codling moth spray just after the petals have fallen.

A few years ago spraying machinery was designed to save liquids as well as to give speed. Today the saving of spray material is a minor point alongside of speed. Time is money in efficient spraying. Although speed is striven for it must not be done at the expense of efficiency. No matter how rapidly the ground is covered the work must be done efficiently or the spraying is a failure.

The blossom cluster spray when the apple blooms show pink is the most important spray for the apple scab organism. When there are forty, fifty, a hundred, or even hundreds of acres to cover in the few days between the time the blossoms show pink and when they open out, one can see that the spraying campaign must go forward at top speed. Minutes of time are worth more than gallons of spray material. In the codling moth spray there can be no delay or the spraying will be worthless. This spraying begins as soon as the blossoms fall, and must be completed before the calyx lobes at the point of the little apple close up. This usually takes place, in late varieties, about ten days after the blossoms fall. In early varieties of apples the growth of the apple is much more rapid and the time for spraying is shorter.

When speed is so essential and every fruit must be hit with the spray at the proper time, we can readily see that economy in spraying machinery is false economy. There are few fruit farms but what are under-equipped with spraying machinery. If a grower has four machines, it usually turns out that he should have five, or even six. Being under-equipped he tries to speed them up and cover the ground and there can only be one result—inefficient work. Speed is essential, but efficiency in the work is absolutely necessary. When a spray outfit is speeded up beyond the efficiency point there can be but one result, more or less defective fruit. In many cases the fruit lost by such inefficient work would, if saved, have paid good interest on the investment in another spraying outfit.

Speed, more speed, but always efficient. If you can't cover your orchard in time and do efficient spraying, buy another outfit; that is the only answer.

New Insect Enemy of the Peach

An insect destructive to the peach and kindred fruits, believed to be new in the United States, has been discovered by entomologists of the U. S. Department of Agriculture. This insect, which in its adult form is a brownish moth, and in its larval stage a small white and pink caterpillar, attacks both the tender shoots and fruit, causing serious losses.

It is known to science as Laspeyresia molesta, and is believed to have been introduced from Japan. So far as the De-

(Concluded on page 31)

FREE

Cover every leaf

with a high-pressure spray that clings

IF you grow fruit for money, then you spray fruit for MORE money. There's no profit in half-way spraying. The BEST equipment is the best INVESTMENT.

That's why successful orchardists, state and college farms, and experimental stations use

DEMING SPRAYERS

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THE OHIO CARRIAGE MFG. CO., Station 37 Columbus, Ohio
Also write for my Farm Wagon and Harness Catalogue

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is safe and simple if you pick from our handsome new book on horticulture. Full of practical advice about fruit and ornamental trees, vines, shrubs and plants. More than a catalogue. **Low Prices** because there is no middleman's profit. Send for free catalog today.

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Liberal Offer No Fruit Grower Should Miss

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Divide your orchard in half, no matter how large or how small. Spray one-half with "SCALECIDE" and the other with Lime-Sulfur, for three years, everything else being equal. If, at the end of that time, three disinterested fruit growers say that the part sprayed with "SCALECIDE" is not in every way better than that sprayed with Lime-Sulfur, we will return the money you paid us for the "SCALECIDE." Could anything be fairer? Write today for full particulars.

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Note how sturdy she is built, please. In designing her we had in mind durability, simplicity and practicability. Comes fully equipped with acre-mark, indicator, screen, lid, seat, neck-yoke, double and single trees. FREIGHT PREPAID. A dependable spreader at a low price.

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IRON AGE Barrel Sprayer

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(horizontal) solves the spraying problem for the busy farmer. Can be used in any wagon, cart or sled. Reliable easy-working pump placed *outside* the barrel—prevents rusting—all parts easy to reach. 100 to 125 pounds pressure with two nozzles. 50 and 100 gallon sizes. We make a full line of sprayers. Write today for our free booklet.

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THE GARDEN

Edited by W. F. MASSEY

All articles for, or questions relating to this department should be addressed "The Garden," The Practical Farmer, Philadelphia, Pa.

Potash in Vegetable Growing

Our truck farmers, especially in the sandy soils of the Atlantic coast, have for many years been in the habit of using large applications of potash in their fertilizers, assuming that the crops of potatoes especially needed this plant food, and much discussion has been made over the particular form of potash to be used for the potato, some insisting that sulphate was essential and better than the muriate.

Now, since potash from Germany has been out of the question and fertilizers used in which there is little or none of this material, the crops have been as large as usual. Doubtless there has been in these truck soils an accumulation of unused potash from former heavy applications, since it is well known that unused potash does not leach from the soil like the nitrates.

At any rate, we have learned that potash is not so essential as has been supposed. All of our upland clay loams abound in potash in inexhaustible amount in an insoluble silicate, and it has been found that in these soils where the humus-making material of organic decay has been maintained and increased through the growing and using of the legume crops, and an occasional liming, the potash can be made available as fast as crops need it, without any artificial application of the potash salts.

The result of the war in Europe will be an education of our farmers and truckers which will save them in the future the spending of so much money for potash. The truckers, by the liberal use in their sandy soils of cotton seed meal, can get in it all the potash needed for their crops, and nitrogen at the same time, and the cotton farmer who exchanges his seed for cotton seed meal can restore the potash to his soil and find no loss, but plenty for his needs. Evidently the lesson will have been learned, and after the war there will be a much smaller use of potash in our fertilizers. My soil is a sandy one, and such as is usually claimed to need potash. And yet for two seasons without potash, my crops of potatoes have been as good, or better than, before when I was using 10 per cent. of potash in a fertilizer.

Early English Peas

When living in North Carolina my rule was to get the extra early garden peas sown the first good spell after New Year. Here in the southeastern corner of Maryland I find that we can usually catch a mild spell in February and get the peas in, as our soil here is light and sandy and can be worked at any time when clear of frost. Early March will be the time 100 miles north of us, as the spring moves up the coast.

So far as the crop is concerned, I do not know that there is any advantage in very early planting. But it gets the early peas out of the way of the later rush of work. I cover them at first rather deeply, and as I find that the seeds are germinating I flatten the ridge made by throwing a furrow over the peas from each side.

As my garden is covered with stable manure in the fall, the only application made in the spring is of acid phosphate. This I spread over the whole garden at the rate of 1000 pounds per acre to make a balance of plant food with the manure. All is then turned under and after that all I have to do for any crop is to prepare the rows and plant.

Of course, every gardener wants to get peas ahead of his neighbors, and while the extra early peas are not of the best table quality, I plant a few, as they can be put into the cold ground without damage, while the better peas should be planted later, as they may rot in the ground.

In March I sow Sutton's Excelsior, Thomas Laxton and Laxtonian. These are all dwarf peas of fine quality and come in directly after the Nonpareil sown early. Gradus is an excellent and large pea of second early character, but I have found it very unproductive here, and get all I want from the three varieties named. But I always wind up my pea sowing in spring with some Champion of England planted along a wire fence on which it can climb. These are planted about the last week in March and being rank climbers need some support, and they wind up the pea season in my garden until I plant a crop for fall picking. Of course, there are many other fine varieties named in the catalogues, but those named will fill the bill very well in the family garden.

Asparagus and Rhubarb

If the permanent beds of asparagus and rhubarb did not get a heavy coat of manure in the fall, lose no time in getting it on them. I treat these as I treat every part of my garden, with a heavy coat of manure in the fall, supplemented with the spring application of acid phosphate.

In the case of the asparagus I apply a good dressing of nitrate of soda as soon as cutting stops, and cultivate clean the rest of the season, the object being to get a strong growth of the crowns to make a stronger growth of shoots the next spring. Big fat stalks are made only by liberal feeding. Where good dry hard-wood ashes are available it is a good plan to give the asparagus some in the absence of potash salts from Germany. These can be applied any time when available. When we could get kainit I always used a good dressing of this in the fall when applying the manure. As this carries a heavy percentage of salt it answered all the purposes that an application of salt could effect. But really I have never found salt of any special advantage to the asparagus crop.

Early Irish Potatoes

With the coming of a new year the planting of early varieties of Irish potatoes begins in the far South, and week by week, as the sun mounts higher, the truckers up the South Atlantic coast get busy with this crop. February sees them in the ground in eastern North Carolina and usually in the Norfolk and eastern shore sections of Virginia. In some seasons we can get them into the ground in late February, but usually the planting here is in early March, followed by the growers in Delaware and on northward.

Here and southward we find that the potatoes of the early varieties that have been grown late in the fall the previous season make the best seed for planting. They do not get above ground quite as quickly as the potatoes from the North, which are older, but they invariably make the best crop and more clear of

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SAMPLE OUR SEED

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C. H. Robinson & Bro., Dept. 88, Baltimore, Md.

ase. When the Early Rose was the ding variety grown by the market owers we could make a good late crop om seed of the same season. The Irish obbler now so largely grown has never een found to make a good second crop, nd the best seed for the fall seed crop the Northern seed that has been held cold storage until June or July. These ake a good fall crop and as they grow ntil frost cuts the tops they are dug te and keep easily without sprouting winter. I have tested these alongide of potatoes from the North, and ound that the Northern potatoes had vidently sprouted in winter and had een rubbed off, for my potatoes started ith a strong terminal bud, while the Northern ones came up with several eaker shoots, evidently from the lateral buds that pushed out after the erminal bud sprouted and had been ubbed off. The growth from the strong erminal bud made a strong one-stemmed lant and a more productive one, and he crop was always larger than from he Northern seed. The alternation of old storage seed from the North for lanting the seed crop here seems to aintain the vigor of the plants, but I ould use the Northern seed only for he late seed crop.

Temperatures in Greenhouse

A correspondent writes that he has hree greenhouses 20x110 feet in which e has been growing lettuce. He wishes o plant part of a house in cucumbers nd wishes to know if it can be done. ou cannot grow lettuce and cucumbers uccessfully in the same house. A night emperature of 45 to 50 is warm enough or the lettuce, but the cucumbers deand a heat at night of not less than 60, nd better 65 to 70 degrees. Hence it s easy to see that the lettuce will not hrive if the house is warm enough for ucumbers, and the cucumbers will not hrive at the proper temperature for ettuce. You must put the whole house n one or the other and run the proper emperature for the crop. But you could ave put part of a house of lettuce in auliflowers very well, for they need hout the same temperature, or you can un a house partly in tomatoes and part- in cucumbers.

Garden Gossip

As soon as the catalogues appear in anuary I make out my entire list of eeds for the season and get them on and. Many varieties of seed are apt to e scarce every season, and late orders ay not be entirely filled, as the stock the seedsmen of some things may run t. Hence it is always best for you and est for the seedsman to have your list rly, while stocks are full and your or- r can be promptly filled.

—o—

It is always important to make a plan f your garden and on it base the plant- g for the season. Having such a plan very year you can refer back to it and us be able to make a proper rotation f the crops and avoid replanting the me crop in the same place.

The Boys and the Stumps

In another generation or two there ill not be a stump left in all the old set- ed farming sections of America. The armers are finding out that stumps are xpensive idlers and parasites, inasmuch s they not only increase the cost of orking the fields, but also because they re keeping out of cultivation virgin oil that is many times the richest soil the farm.

The older generation was taught not mind the stumps. When they began farming the land had been for so short a time logged off that they expected to dodge stumps in working the fields, but the coming generation will not have this point of view and the stumps will have to go. Another influence that will operate to force the removal of the stumps is the increasing use of motor driven farm tools. The heavy tractor for plowing is already here and successful, and in many parts of the country has replaced horses for turning the soil. And upon the heels of the heavy tractor for plowing is coming the light motor for cultivating, disking, harrowing, and all the other lighter forms of field operation. When we have motor-driven farm tools we will no longer permit the stumps to remain on the farm.

At the present time there is an opportunity for the young man on the farm to make money with a stump puller. The best stump puller companies report that ambitious young men often make enough to more than pay for their outfit during the first season. They not only clear up their own fields, but clear the fields of their neighbors. In this work it is possible to make during the dull fall and early spring months from $10 to $12 per day with a team. It is a business for which there is a big field in almost every part of the country. Although we believe that stumps are going to practically disappear from American farms in the next generation or two, there is today hardly a farm in America that does not need the service of the stump puller. The young man who takes up this work will not only be making money for himself, but he will at the same time be of actual benefit to his community, as every stump left standing on the farm is an idler and a parasite upon good land.

Will This Prevent Borers?

L. E. Girton, Pittston, Pa., writes us: I think the fruit growers should know, through The Practical Farmer, that I have found how to keep borers from peach trees with little cost. I did this by watching a peach tree grow in a peculiar place. I saw that borers never entered it, so thought I would try it on my trees and found it to work wonders. By taking the cinders from the front end of an engine and placing about a bushel of them around the trees they seem to thrive and borers do not touch them. Real fine coal culm will answer the same purpose if cinders cannot be obtained. Bank the trees about six inches above surface of soil with this. Better to take three or four inches of dirt from around trees first. This I have found to be a sure success.

New Insect Enemy of the Peach

(Concluded from page 29)

partment's entomologists know, it has not been found in America other than in the District of Columbia, Maryland and Virginia.

The presence of the insect can best be determined in most cases by the nature of its injury to peach trees. It bores into practically every tender twig and causes new shoots to push out from lateral buds. These are attacked in turn, the abnormal stimulation of lateral growth producing a much branched and bushy plant. A copious flow of gum from the twig ends often follows the attacks of the caterpillars.

The Bureau of Entomology, U. S. Department of Agriculture especially requests owners of peach or other fruit trees to report the presence of this new pest in their orchards. Specimens of twigs may be mailed wrapped in paper, or, preferably, in a suitable box.

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If not, you have lost a part of your profits. The Aroostook County farmer insures successful crops by applying plenty of high-grade fertilizer. He plows and cultivates carefully, uses clean seed and sprays often. These gigantic crops are the result of intelligent care and ample supplies of effective plant food.

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No Mill Will Do Good Work Without the Proper Assortment of Screens

We furnish an outfit of 12 screens for cleaning and grading all kinds of seed, seed grain, seed corn, clovers, alfalfa, millet, timothy, flax, peas, beans, cow peas, soy beans, etc. And after the most careful study and tests in actual work, we guarantee this screen outfit to be the best that has ever been offered with any mill. There are screens for clover containing buckhorn or plantain, timothy seed containing pepper grass, for separating cockle from wheat and many other difficult separations.

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Made in Two Sizes: No. 1-B $25.00 No. 2-B $35.00 (Freight prepaid to any point east of the Mississippi River)

In Successful Farming Three Factors are Prominent—the Soil, the Man and Good Seed

The Clipper Cleaner puts success within your reach by insuring the Good Seed

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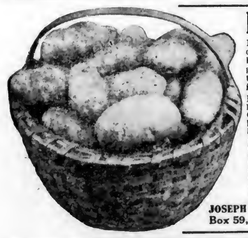
A. T. FERRELL & CO. SAGINAW, W. S. MICH.



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Harris' Seeds are different from others. They are raised on our own farms and are bred with as much care as thoroughbred live stock. Every lot is tested and the percent that germinates is marked on the label so the purchaser can tell just how many will grow. **No other seedsman in the world does this.**

Harris' Seed Corn is becoming famous for strong vitality and big yields. **Seed Potatoes** selected by the "hill-built" system. **Garden Seeds** that grow and produce crops that are of the highest type. Don't use inferior seeds at low prices, or pay more than the wholesale price we ask for Harris' seeds, for there are **no better seeds at any price.** Our new catalogue is full of good things. A card will bring it.

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Soils and Field Crops

Conducted by A. E. GRANTHAM

In this department will be answered questions relating to soils and their improvement, field crops and the use of lime. Questions should be addressed to the "Soils and Field Crops" department, care of The Practical Farmer, Philadelphia, Pa.

Growing Crimson Clover Seed

In Delaware, where Crimson clover has been grown for nearly a generation, the continued success of the crop for soil improvement has been due in a large measure to the understanding of the best methods of handling the crop for seed. No soil improvement crop can be a success very long if the growers are compelled to buy all of their seed from year to year. Since the first crop of Crimson clover is the seed crop, seed can always be produced where the plant thrives. For this reason the grower of Crimson clover can, in most cases, grow enough seed for his own use, and in many cases make seed growing a profitable addition to other farm crops. The Delaware growers get the best results for seed on land not too rich. Soil of medium to low fertility produces the best yield and quality of seed. Then, too, the clover should not be sown too thick on the ground. Where thickly sown on rather thin soil the plants fail to develop any size and consequently have short heads. On rich soil the clover grows too rank; it often lodges, in which case the heads often fail to fill well. For seed purposes, Crimson clover should not be sown at a rate of more than 15 pounds per acre, and in most cases 10 to 12 will prove more satisfactory. As it is the tendency of the plant to send up a number of stalks from each seed, moderate seeding will give as good a stand and of more perfectly developed heads than thick seed.

For seed production Crimson clover should be supplied with a quantity of mineral elements, phosphoric acid and potash, applied either for the clover directly before seeding or on the corn in which the clover is sown. Delaware growers rarely fertilize Crimson clover when sown in corn. A mixture of 400 pounds of acid phosphate and 100 pounds of muriate of potash applied at the rate of 250 to 400 pounds per acre on a sod for corn is sufficient for that crop and will bring a good stand of Crimson clover. In case the clover is sown in the open or on specially prepared land the above mixture may be used just previous to seeding. On account of the corn stubble remaining from that crop, perhaps it is more satisfactory to grow Crimson clover for seed on land plowed and especially fitted.

Crimson clover is not cut for seed until the heads have turned brown. So long as a part of the clover spike remains red it means that a portion of the head is still in flower and will not develop plump seed if cut at that stage of maturity. After the head has turned brown there is danger of the seed shattering if the clover is quite dry. Hence it is necessary to cut the clover for seed while tough, either early in the morning or after a light rain. Occasionally Delaware growers cut during the night in order to prevent too great shattering. The ordinary grass mower may be used for cutting and the clover raked into windrows like hay. A mower supplied with a bunching attachment is more satisfactory and it saves one handling of the seed, leaving the clover in small piles. Unless the clover can be handled when tough there is always some loss, as the seed shatters very easily. In most cases the seed is hauled directly to the huller from the bunch or windrow. When hullers are not convenient the seed is sometimes stacked. Th latter practice is not desirable if hulle are available on short notice. Owing the downy character of the Crimson cl ver heads they absorb considerable wat and do not dry out easily during w weather. Consequently a series of rain days after the clover is cut for seed wi prove disastrous to the crop unless th bunches or windrows are turned fre quently so as to dry the seed rapidly There is a considerable tendency for th seed to sprout in the hull under suc conditions. Hay caps of oiled muslin or canvas material would prove a grea boon to the Crimson clover seed growers as the clover could then be placed i good sized cocks in the field and allowe to remain until threshing. One of th drawbacks to seed production in som localities is the lack of seed hullers Crimson clover is not difficult to thres and the ordinary seed huller will do th work satisfactorily. A co-operative hul er owned by the farmers of the neigh borhood would prove a very satisfactor means of handling the seed crop. It i the practice in some places where th grower desires only a small quantity o seed, when a thresher is not availabl to flail out the clover seed when qui dry and then sow the seed while retaine in the hull or chaff. The main difficult which besets the handler of seed is th uncertain weather which is likely to o cur during the early part of June whe the seed is ready for threshing. Th Delaware farmer finds that he can gro a crop of corn after a seed crop of cri son clover. For this reason the growin of seed in connection with a corn cr gives a very satisfactory yield from t land in one year. The yields range fro 4 to 12 bushels per acre, with an avera of about 7 bushels. Local prices va from $4 to $9 per bushel, depending the season. Delaware growers pref home grown seed if they can get Clover that is to be sown for seed pu poses should be free from such wee seeds as charlock or wild mustard, these mature the same time as the clov and are almost impossible to remo from the seed. However, the musta may be easily removed from a field growing clover, as it may be readi identified by its size and yellow blo soms. By going through the field abo the time the blossoms appear, the se crop can be easily freed from this wee

The principal difficulties in the gro ing of seed as stated by Delaware far ers are lack of hulling machines at proper threshing time, the uncert weather, and the tendency of the seed sprout and shatter. Seventy-five cent. of the growers state that seed gro ing is possible under ordinary con tions. Eighty per cent. of the grow claim that they can mature a crop corn following a seed crop of clover. variety of corn very commonly used this section after clover is the 100- Bristol, which is known to mature ea and produce some corn.

Queries Answered

Treating Manure with Acid Phosphate.—L. K. F., Maine, writes: "Will kindly inform me where acid phosphate be procured, and whether or not it would practical to sprinkle it in the stalls of a mals to be mixed in the manure? Also, wo it be better to mix lime with the acid ph phate before sprinkling in the stable?"

It is a good plan to supplement stab manure by adding acid phosphate or ra rock phosphate. This can be done sprinkling in the stalls every day or a few pounds of the material. About 25 to 40 pounds of the acid phosphate should be added to each ton of manure. The value of the manure is much improved by this supplement. Do not mix lime with either acid phosphate or manure, as the phosphoric acid is made less soluble in the one case, and nitrogen may be lost from the manure in the other. Acid phosphate can be procured from any large dealer in fertilizer.

Improving Light Soil.—F. L. C., Delaware, writes: "I have a field that was in corn this year and yielded less than 25 bushels per acre. It was a Scarlet clover sod and was not manured or fertilized. The field is a gravelly clay loam and is, I think, a naturally good soil, but has been cropped continuously without manure until it is very poor. Which of the following plans would be best for next year, to sow cowpeas with 200 or 250 pounds per acre of acid phosphate, cut the peas for hay and seed to rye to be turned under; or to seed lightly to oats or barley with same amount of fertilizer early this next spring and at the same time seed to Mammoth clover or Sweet clover and cut for hay before the grain matures? Would I likely get a good stand of clover by the latter plan? Can you suggest a better plan?"

The first method will generally be preferable on light soil such as you have. You can improve the plan by sowing about 15 pounds of winter vetch along with the rye. You will get more feed from the cowpeas than from the oats and barley, and the rye with the vetch will give a large quantity of green manure to turn under. Be sure the cowpeas are thoroughly inoculated.

Potato Fertilizer and Buckwheat.—A. F. S., Jr., New York, writes: "Is there any grain that if sown after early potatoes will mature a crop before cold weather? How should fertilizer be applied when putting in early potatoes and in what quantity for land in medium condition as regards fertility, etc.?"

About the only grain crop that can be matured under these conditions is buckwheat. Of course, buckwheat is not a true cereal, but under your climatic conditions should produce a good crop. Many potato growers prefer to sow or drill about half of the fertilizer before planting. The remainder of the fertilizer is put in the row with the potatoes, generally by the machine planter. If your soil is well adapted to potatoes you can afford to use 800 to 1000 pounds of a 4-10 goods per acre.. This is omitting the potash.

New Jersey Agricultural Week

The date of meeting of the Agricultural Convention at Trenton is January 24, 25 and 26. Delegates from county boards of agriculture and many other agricultural associations of the state will meet to elect two members of the State Board of Agriculture and to transact other business. Reports will be made to this convention by the president of the State Board of Agriculture, Hon. Jos. S. Frelinghuysen, and Secretary of Agriculture, Alva Agee. Distinguished speakers from a distance will address the convention, which will conclude its official work Wednesday.

During this Agricultural Week the Department of Agriculture is the host of many state associations that will hold their annual meetings in Trenton. The State Holstein-Friesian Breeders' Association, the State Jersey Cattle Association, the State Guernsey Breeders' Association, the State Berkshire Breeders' Association, the State Poultry Association and the State Horticultural Society have accepted invitations to meet during the week, and their programs, including lectures by some of the most noted authorities in the United States, will be ready for distribution early in January. The poultry exhibit in the Armory will be unusually attractive, and the Bureau of Markets will have an exhibit of apple-grading machines and also packing demonstrations.

Scheduled Farmers' Meetings

Ohio Vegetable Growers' Association, Columbus, O., Feb. 1-2.
Ohio State Corn Show, Ohio State University, Columbus, O., Jan. 29 to Feb. 2. Entries close Wednesday, Jan. 23.
Ohio State Horticultural Society, Columbus, O., Jan. 30-31.
New York State Grange, Oneonta, N. Y. Feb 6-9.
Farmers' Week, Cornell University, Ithaca, N. Y., Feb. 12-17.
New York State Vegetable Growers' Association, Ithaca, N. Y., Feb. 13-15.

The Final Answer To the Tractor Fuel Question

Every farmer knows that the best paying, most economical tractors are those that operate successfully on kerosene.

But every farmer can't tell a real kerosene tractor from an imitation before he buys it. It takes an expert to do that.

Neither does he want to take someone's word for so important a feature. That is not good business.

We believe that a farmer who buys a machine costing hundreds of dollars is entitled to get what he pays for. He should be fully protected in such an important purchase.

We **know** that **Titan** tractors are real kerosene tractors. They are **built** to operate on kerosene. They **operate successfully** on kerosene. When we sell one we **guarantee** it to operate on kerosene, **writing that guarantee into the warranty** that you get when you sign the order.

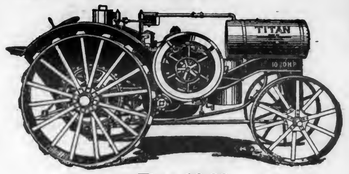
When you buy a **Titan** tractor you are **safe.** You have the **written guarantee of a responsible Company** that your tractor will do good serviceable work using common coal oil as fuel at all loads.

That is the final answer to the tractor fuel question.

Titan tractors are now built in three sizes, 10-20-H. P., the 3-plow outfit; 15-30-H. P., for 4 and 5 plows; and 30-60-H. P., for the heaviest work of the largest farms. All operate on kerosene.

The 10-20-H. P. size is recommended for all kinds of farm work within its capacity. It is a two-speed tractor, 1.85 and 2.50 miles per hour, with a smooth running twin cylinder engine, slow speed, mechanically oiled, starting and running on magneto. It can be used for any field work you would expect nine or ten horses to do, and it will run any machine that takes up to 20-H. P. at the belt.

If you place your order soon you can have **a guaranteed Titan tractor** for the heavy Spring work. Start now to get acquainted with this dependable line of tractors. Drop us a line so we can send you full information at once. Don't wait. Write now.



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$950 Cash f. o. b. Chicago

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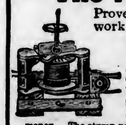

Proven a most economical device for clearing stump land. Pulls stumps *faster*, *cheaper* and with less work. Your fifteen-year-old boy can drive it around, load and unload it alone. The

Hercules Triple Power Portable Stump Puller

Comes equipped complete, ready for work. The new portable is the greatest development in stump pullers of today. One man handles the job alone, no extra help needed. Think of the tremendous saving of two extra men at $2.25 per day. **Hercules Beats Hand-Power Machine.** In Minnesota State Experimental Farm test the Hercules pulled more stumps than a hand-power machine and pulled the stumps at **61% less cost.** Think of it, 61% cheaper for you to operate the Hercules. The Hercules, at another State Experimental Farm test, pulled stumps at 70% less cost than dynamite. Write me your stump pulling problems today. Tell me just how much land you have to clear. I'll tell you how to get stumps out for the least money. The stump puller that **will save you money** and **do the work faster and safer** is the puller you want. A card from you today brings my special low price, the most remarkable stump puller offer ever made—all facts and proof, with full particulars also information regarding **Hercules Hand-Power Machine with 120,000 lbs. pull.** My book contains a fund of practical, useful information. Write for it today. B. A. Fuller, Pres. **HERCULES MFG. CO., 1582 25th St., Centerville, Ia.**

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Raise High Priced Wheat on Fertile Canadian Soil

Canada extends to you a hearty invitation to settle on her **FREE Homestead lands of 160 acres each** or secure some of the low priced lands in **Manitoba, Saskatchewan and Alberta.** This year **wheat is higher** but **Canadian land just as cheap,** so the opportunity is more attractive than ever. Canada wants you to help **feed the world** by tilling some of her fertile soil **—land similar to that** which during many years **has averaged 20 to 45 bushels of wheat to the acre.** Think of the **money you can make** with wheat around **$2 a bushel** and land so easy to get. Wonderful yields also of **Oats, Barley and Flax. Mixed farming** in Western Canada is as **profitable an industry as grain growing.**

The Government this year is asking farmers to put increased acreage into grain. Military service is not compulsory in Canada but there is a great demand for farm labor to replace the many young men who have volunteered for service. The climate is healthful and agreeable, railway facilities excellent, good schools and churches convenient. Write for literature as to reduced railway rates to Supt. of Immigration, Ottawa, Can., or to

F. A. HARRISON, 210 North Third St., Harrisburg, Pa.
Canadian Government Agent.

TIGHT BINDING TEXT CUT OFF

"Eglantine" White Leghorn Cockerels $5

Big, healthy birds that will surely produce heavy-laying daughters. From the strain that produced "Queen Caroline," with a record of 310 eggs in 24 consecutive months, and the holder of the world's official record—

"Lady Eglantine" 314 Eggs in 365 Days

49 Eglantine pullets laid 11,007 eggs in one year, an aver ge of 224 each.

At little cost you can put this bred-to-lay blood in your flock through the male, the most effective way.

Matings based upon accurate trap-nest records—our standards are exacting. Eglantine Cockerels will please you in every way.

Cockerel list FREE—Write

EGLANTINE FARMS
Box P Greensboro, Maryland

125,000 Chicks for 1917

Increased capacity means our prices are now the lowest. We are baby chick specialists, have eight years experience, have hundreds of customers that order chicks from us year after year. Our chicks are the big, strong, husky, vitality kind. S.C. White, Brown and Buff Leghorns, B. P. Rocks, W. Wyandottes, B. Minorcas and Broiler Chicks. Safe delivery guaranteed to your station. No order too small, no order too large. Booklet free. Write today.

THE KEYSTONE HATCHERY, Dept. 20, Richfield, Pa.

GEESE AND DUCKS.—Largest collection in the U. S. 500 head for sale. Large, vigorous farm grown, selected breeders, reasonable prices. Toulouse, Embdens, Brown Chinese, Africans. Ducks—Pekin, Rouen, Aylesburys, Colored Muscovys, White Muscovys, Cayugas, Indian Runners, Buffs and Cairs. Every farmer should grow geese and ducks. They are money makers for you. Write today.
Chas. McClave, Box 5, New London, Ohio.

Barred Plymouth Rocks

Pullets bred from pedigreed layers, at reasonable prices. If you wish to improve laying quality and color of your flock, get one of my cockerels.
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TURKEYS 100 head selected breeders for sale. Bronze, Narragansett, Bourbon Reds, Whites and Blacks. Grown on separate farms. Vigorous, healthy breeders, finest quality, reasonable prices. Write today. Chas. McClave, Box 5, New London, O.

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POULTRY AND SQUABS FOR PROFIT. An encyclopedia of poultry information. Written by a man who knows. Leading varieties of poultry and pigeons in natural colors. Low prices on fowls and eggs.
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Barred Rocks, White and Golden Wyandotte, Light Brahmas, Leghorns, Langshans, and Orpingtons. Farm grown healthy, vigorous stock. Price quality, reasonable prices. 500 head for sale. Buy your stock from a veteran breeder. Write today.
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QUALITY CHICKS and eggs from our blue ribbon winners. They lay, win and pay. Orders booked for spring delivery. Seven varieties, circular free. E. R. Hummer & Co., R. D. B, Frenchtown, N. J.

Trap-Nested S.C.W. Leghorns S.C. R. I. Reds Buff Ply. Rocks **200 EGG Strain**

Stock, eggs and chicks. Our booklet free. Satisfaction guaranteed. PARADISE POULTRY FARM, Paradise, Pa. Box D.

PATENTED TRAP NEST Only 25c. for instructions and right to make for your own use. Can be made from an orange box.
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FOR SALE. Pairs, trios, pens; all varieties. Rocks, Reds, Wyandottes, Leghorns, Orpingtons, Andalusians, Campines, Hamburgs, turkeys, ducks and geese. Prices low. RALPH H. RABY, R. 6, Millersburg, O.

CHICKS Eggs and Breeding Stock. All Leading Varieties. Order now. Safe arrival guaranteed. Booklet free.
Houck Hatcheries, Box 20, Tiffin, Ohio.

Giant Strain Bronze Turkeys. From "Hugo King" 45 lb. yearling and Md. Sq. Garden winners. Massive youngsters. Big Buff P. Rock Ckls. J. C. Clipp, Box P, Saltillo, Ind.

Bronze, Narragansett, White Holland, Bourbon Red, black and slate breeding turkeys for sale. From the finest flocks in America. Winners at the leading shows. Special prices. Write F. A. Clark, Freeport, O.

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Also *Leghorns*, eggs, cockerels, pullets at right prices. Mating list. W. E. CATHER, R. 2, Winchester, Va.

MAMMOTH BRONZE TURKEY TOMS from a 57 lb. tom, white edgings. B. P. Rock cockerels. Royal Blue strain best type and color. Miss Susie Wright, Vecchdale, Ky.

90 Varieties. Poultry, pigeons, dogs, ferrets, guinea pigs, hares etc., folder free. Colored descriptive 60-page book—10c. Bergey's Pet Farm, Telford, Pa.

Bryan's Lt. Brahmas. "Jumbo Strain," have the laying habit. Established 15 yrs. Farm raised stock for sale. Guarantee satisfaction. DAN BRYAN, Portland, Ind.

Beautiful COLUMBIAN WYANDOTTES and heavy RED SUSSEX (from imported stock). Breeding cockerels a specialty. Ralph Woodward, Box 18, Grafton, Mass.

Mammoth Bronze Turkeys and Rose Combed Reds
John D. Smith, Walton, New York

Black Leghorns Bred to win and lay, backed by years of careful breeding. Birds $1.00 and up. Milo L. Myers, Marysville, Ohio.

COCKERELS S. C. W. Leghorns, Wyckoff strain direct. $1.50 to $3.00 each. Satisfaction guaranteed. J. M. CASE, GILBOA, N. Y.

Mammoth Bronze Turkeys, America's leading strains, prices reasonable. Satisfaction guaranteed. Write MOSER BROS., Box 249, CLAYSVILLE, PA.

POULTRY

Edited by F. V. L. TURNER

All letters, inquiries and requests in reference to poultry, should be addressed to the Poultry Editor of The Practical Farmer, Philadelphia, Pa.

Practical Poultry Talks

What Will the Harvest Be?

Editorially The Practical Farmer has called attention to the profit possibilities which lie behind the causes for high prices, specifically in the case of the common egg, that chastened product of the farm which has been the subject of labored legislation, unlimited attention from the public press and one of the chief concerns of federal administrative agents.

We are told that the egg market is never bare, that there will always be eggs; this is admitted and concern about eggs is not in an empty market or failure of supply, but in the price thereof. It is said, too, that the prices would fall or fail if there were no cold storage houses, middlemen and other price fixers. Perhaps the reverse might be true, so true that farm fixed prices might be far in excess, certainly at some seasons, of any price fixed by professional fixers.

With the present conditions in mind, a dearth of operating hens and a greater demand at hand than has ever before been experienced, it appears that the efforts of The Practical Farmer in pointing the way to better things, to greater possibilities, should be redoubled. There is a greater desire for knowledge of improved methods; more poultry raisers are seeking outlets for their high grade products and manufacturers of incubators, brooders and accessories are compelled to meet increased business. Now; shall the old and obsolete way continue? Shall a splendid business fall by the wayside simply because the old hen is still the old hen?

With all the force that can be put into an answer, NO!

Far too big and far too fine is this poultry business to remain in obscurity because of lack of new methods—the poultry game is older than the pyramids, while an ever growing, moving world is going faster and faster on newly made wheels of higher speed.

Farm improvement has nearly always lacked advancement in poultry culture, while poultry culture as a distinct business shows such a marked difference between its methods and poultry methods on farms that the reason for the difference in profit is as the blazing sunlight to a dense fog.

Laboring under the delusion that increased facilities to raise more poultry means an impossible investment, the average farm poultry producer rests his enterprise upon the whim of the hen that lays when she pleases, and hatches her brood when her pleasure is again a matter of hen wisdom or caprice.

The writer wishes to call to the attention of all sensible hen owners a few pertinent facts in an effort to place upon a more profitable basis the hen end of all agricultural pursuits and to place upon a safer and more profitable base mechanical adjuncts that will turn out a flock of layers that will produce in profitable quantities eggs in the time of high prices; to reconstruct the flock of non-producers; to cast out the drones that eat good grain all winter and lay only a few eggs in the spring.

Incubators are made simply and do the work without constant care and attention from an experienced hand. Children operate them; inexperienced persons can succeed right from the start. All that is necessary is to read the instructions over carefully and follow them. There is nothing complicated about incubators. They were made to do the work for people who haven't time to take a special course of study to prepare them for handling incubators.

Of course, feed is high, too. Poultry brings a big price. Corn, wheat and cotton are high. Everything is high priced. We used to think that chickens made good money when eggs were 15 to 18 cents a dozen, corn 50 cents a bushel and wheat 75 cents a bushel. Eggs now are worth 40 to 65 cents a dozen. Corn is worth 80 or perhaps 75 cents. Wheat is worth $1.50 to $1.75. The hen has a wider range of profit now than she had when feed was cheaper. Therefore the feed argument is unsound.

There is more to early hatching and producing spring friers and broilers than the usual poultry article dwells on so much. The early hatched pullet begins laying before she has consumed much feed, laying at six to seven months old. She also brings eggs when eggs are high priced, which is in the fall and winter. It is not so much a question as to how many eggs a hen lays in a year as it is the time she lays them. It is better to have a dozen fresh eggs in December than two dozen fresh eggs in May. The early pullet has to be hatched from eggs that are winter laid. To think of it, it is easy to figure out how much more profitable the early pullet is that lays at six and seven months old and lays high priced eggs, than the late pullet that doesn't lay until spring, after being fed and housed all winter and then lays cheap eggs. She is in competition with thousands of hens. It is late hatched chicks that fill the cold storage houses.

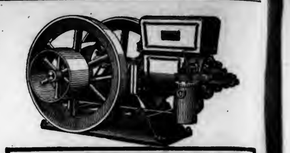
The poultry business is a big business. It thrives in every part of the United States. There are no one or two states that have a monopoly on the business. There is no poultry belt like there is a wheat belt, cotton belt or corn belt, and the poultry buyer comes right to the house to get the poultry, no marketing troubles. The eggs are marketable at any store in trade or cash, and frequently to hotels and clubs at a premium much above the market.

The largest agricultural states are the largest users of incubators and brooders. The most prosperous communities have more incubators and brooders than the poor communities. It is up to the farmer to gather his harvest—there is no better time to begin than now and the reaping will be sure.

Of all the written words that go to make up the vast educational system promoted, fostered and scattered broadcast to agriculturists by the agricultural press, there is no one subject that is equally as vast in common practice as poultry culture, and there is none that offers the same rate of return for investment.

Put the growing of the multitude of crops annually produced in this country up to the poultry producers, the women of the farms, and it is safe to say that poultry production would overshadow in volume several of our greater products.

The one thousand hens in the fourth annual egg laying contest at Storrs, Conn., consumed during the year one and a quarter tons of grit and shell.



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Let me send you an engine to earn its own cost while you use it—for my Kerosene engine gives more power from a gallon of 6-cent kerosene than you can get from a gallon of 20 or 25-cent gasoline in any gasoline engine—Easy to start; easy to operate; no cranking; no batteries.

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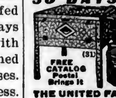

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Our Barter Column

This column is for our Subscribers only—no Real Estate Agents, Dealers or Manufacturers. 2 cents per word; no advertisement less than 50 cents.

Belgian Hares, thoroughbred Rufus Reds, utility stock 2 and 6 months old, $1 and $2 each. Address JAS. M. HILL, R. 3, Box 84, Princess Anne, Md.

For Sale. 150 acre farm on Waldin's Ridge, house and barn, fruit of most kinds, mineral water fine climate. A bargain. Address J. F. GADD, Graysville, Tennessee.

Honey, chunk honey, 12c per pound in 10 pound lots or more. Fancy mixed comb honey, 12½c a box. Fancy white clover comb at 15c. Prices F. O. B. Address, ROSCOE F. WIXSON, R. F. D. 20, Dundee, N. Y.

Pure, but unrecorded. Farmers' prices; choice ewes, bred Southdowns, Hambouilletes, (also Grades). Black Percheron Stallion, coming three. Chester Whites. Want Registered Guernseys. SUMNER, Le Raysville, Pa.

100 Acres fine laying land; very good soil; good improvements; near station; Harford Co., Md. $4500. A bargain. Box 625, Baltimore, Md.

Wanted. Small northern family, experienced in country ways, wants help to make start in more southern state. Clean, reliable, willing, Christian people, middle-aged; two children, girls, 10 and 8 years. Experienced in small farming, poultry and fruit, especially apples. Men especially good salesmen. Work on wages, shares, or for land. Write at once for particulars. CHARLES C. DOOBLY, 104 New York Avenue, Rosebank Staten Island, N. Y.

What We Are Asked

Heredity in Egg Production.—H. S. B., New York, writes: "We have just been reading your article, 'Heredity in Egg Production,' in December 15th issue of The Practical Farmer, being especially interested in the part where you say: 'In the examination of 3000 birds entered in an American egg laying competition * * * the anatomical studies in connection with these have proven beyond question that the heavy layers are as easily picked out at the beginning of the competition year as their records prove them later on. * * * To pick the layers from a flock of any proportions is a simple matter.* * * *' Will you be so kind as to inform us to which contest you refer? Is there any bulletin or information that we may secure on the matter? Do you refer to the Hogan system or a similar method? Please state how it is done. It has been our policy to trapnest each year for the full year 250 of our earliest laying pullets, but we know of no way to select the layers from the remaining 2750 hens of our flock. Any plan we might adopt would be tried out first on the 250 pullets to compare with their actual records."

The contests referred to are those conducted by the North American, Philadelphia, with the writer as managing director. No bulletins have ever been published dealing with this phase of these contests. The inception of the practice of picking the heavy layers in these competitions was brought about through a study of the outward characteristics possessed by all of the birds that laid over 200 eggs in 365 days, a careful study of Hoganism, Mendel's law and the personal history of each bird as corelated to its trap nest record. By the bird's personal history is meant her consistency of performance, tightness of feathers, extent of rest periods, broody inclination, molting time, appetite, health and degree of activity (vigor). These studies and close observation have proven that Hoganism is not an exact science, its few exceptions being sufficient to prove its efficacy when coupled with visible characteristics and personal history.

In animals, one or more varieties of a breed may possess certain qualifications not possessed by other varieties, concretely, the Jersey cow, which has known no introduction of foreign blood in over 200 years. On the other hand, fowls of different varieties, in this and most other countries, have been the victims of indiscriminate matings for thousands of years.

Since the law of heredity applies throughout all nature, outrages against any particular form of life is necessarily reflected in cycles and with degrees of intensity based upon the extent of the outrage—a layer capacitated for 30 eggs mated to a male whose dam laid 200 eggs will produce progeny qualified to lay in varying numbers to certain percentages of the whole brood, say 25 per cent. will lay 200 eggs and 75 per cent. will lay variously from that figure down to nothing.

Dr. Raymond Pearl, Maine Experiment Station, Orono, Maine, has elaborated the varying degrees of capability in certain individuals in bulletins published by his station, and his work is along the same lines as that of Dr. W. J. Spillman, Dept. of Agriculture, Washington, D. C., ten years ago, covering the color of feathers in fowl life.

Owners of flocks have, as the result of the knowledge coming out of laying competitions, Hogan's method and personal study, been able to cut down the size of their flocks nearly 50 per cent. without reducing the egg yield. In one case a well known breeder will be able, through breeding along lines calculated to develop only heavy layers, in the next two or three years, to sell a flock of 100 or 200 pullets with a guarantee that each of them, barring accidents, will lay over 200 eggs, if kept in about the same condition, environment, etc., as obtains on his place.

It must be said of Hoganism that it is inaccurate with over-fat, in degree only; primarily it was worked out on Leghorns. It is successful on any breed or variety where the operator is possessed of analytical tendencies. With over-fat birds too great an abdominal area is apparent and the pelvic bones are very much thicker than when in full lay. Again, the heavy varieties, Rocks, Wyandottes and Reds, never possess the fineness of abdominal structure, pelvic bones, and clear evidences of what is designated by Hogan as condition.

In the fifth competition a Black Orpington pullet gave every indication (except pelvic) that she would lay 190 eggs—she did not lay an egg in the 365 days. A White Wyandotte with every indication that she would lay over 200 eggs, laid 38, nature here stepping in, according to Mendell (as ascertained from her parental history) and controverting Hogan's theory. In the case of the Orpington, atrophy of the ovaries may have been the cause of sterility rather than an hereditary lack of laying factor. Undoubtedly the laying factor is beyond the control of external characteristics; it is an hereditary possession, governed solely by nature, but the external characteristics are present with the laying factor in over 80 per cent. of all individuals; that is, so far as our knowledge goes now. It is apparent from investigations now going on that a greater percentage of heavy layers can be made through certain mating systems, though a year or two more will be necessary to establish fully why.

Intense observation is not necessary to pick the layers with a reasonable degree of accuracy; a careful study of the fundamentals of Hoganism and observation of the practices of the contest referred to will enable the average hen man to "get" the drones, always remembering that the culled flock that yields an average of four eggs per bird in seven days is about the maximum, except in very small flocks.

A table of characteristics accepted as covering the case is employed at the contest to determine probable capacity and is given in full herewith.

The subjoined table sets forth such superficial characteristics as indicate the productiveness of each individual in certain pens. The characteristics indicating productiveness are:

1. Color of face, comb and wattles.
2. Length of body.
3. Condition of feathers.
4. Condition of pelvic bones.
5. Distance between the pelvic bones.
6. Distance between pelvic bones and end of keel.

These characteristics will be numbered, respectively, from 1 to 6 in the table. Where the expression "2 F" appears, it means that two fingers can be placed between the edge of the pelvic, or laying bones, as they appear through slight pressure made by the fingers; thin or thick pelvic bones are recognizable as indications of high or low capacity, coupled with the distance between the pelvic bones and the end of the keel, or breastbones, which is also expressed "3 F" or "4½ F," etc.

PEN 6

Bird	1	2	3	4	5	6
1	Red	Long	Tight	Thick	2½F	4 F
2	Red	Long	Tight	Thick	3 F	4 F
3	Red	Long	Tight	Thick	3½F	5 F
4	Red	Long	Tight	Thick	3 F	4 F
5	Red	Long	Tight	Thick	2 F	3 F

(All birds in fatty condition in posterior portion of abdomen.)

PEN 7

1	Red	Long	Tight	Thick	3 F	4½F
2	Red	Long	Tight	Thin	2 F	3 F
3	Red	Long	Tight	Thick	1½F	2 F
4	Red	Long	Tight	Thin	3½F	4 F
5	Red	Long	Tight	Thick	2 F	3 F

PEN 8 (fatty condition)

1	Red	Long	Tight	Thick	3 F	*5 F
2	Red	Long	Tight	Thick	3 F	4 F
3	Red	Long	Tight	Thick	2½F	4 F
4	Red	Long	Tight	Thick	3½F	4 F
5 ..Pale	Red	Long	Tight	Thick	2 F	4 F

PEN 9 (fatty Condition

1	Red	Long	Tight	Thick	3½F	*5 F
2	Red	Long	Tight	Thin	3 F	4 F
3	Red	Long	Tight	Thick	2 F	4 F
4 ..Pale	Red	Long	Tight	Thin	3½F	4 F
5	Red	Long	Tight	Thick	2 F	3½F

PEN 10

1 ..Pale	Red	Long	Tight	Thick	2 F	4 F
2	Red	Long	Tight	Thick	2 F	3 F
3 ..Pale	Red	Long	Tight	Thin	1 F	3 F
4	Red	Long	Tight	Thick	1½F	2½
5	Red	Long	Tight	Thin	1 F	2 F

*One hand.

Obviously trapnesting an individual (or a number of layers) is not sufficient as a base for mating for egg production; many undesirable qualifications escape the trapnest. No poultryman wants an individual in his pen of reproducing breeders that molts before November 1st (the trapnest record ends with the 365th day, so that beginning of a trapnest year may be October 1st, and therefore cannot include the subsequent performance), equally true is it that tinted eggs, extreme rest periods and broodiness are not included in the trapnest record in an analytical sense.

To give value to the trapnest's record an intimate personal history of each bird must be made conjunctively therewith. Cases are recorded in goodly numbers where heavy layers have refused to molt except in a desultory manner, occasionally dropping a feather through September, October and November without any appreciable decrease in egg yield—such birds are invaluable as breeders and their kind can be perpetuated and increased through line and severe inbreeding.

Where flocks are bred up to standards set along the lines indicated in this reply the evidences of laying capacity are more pronounced and therefore layers are more quickly and surely distinguishable, while the operator of a poultry plant is enabled to quickly separate the layers from the non-layers.

To handle 2700 birds requires less time than the average poultryman imagines—30 to 40 birds can be leisurely handled in one hour, at night, while the birds are roosting—twelve hours, four hours each night, will give a total of 360 birds at a minimum calculation or 90 hours for the job, seven and a half evenings. This handling contemplates only plain Hoganism or the simple elimination of the non-producers. For other purposes more time will be required, all of which will be profitably expended.

Beware of Frosted Combs

During the late winter and early spring, breeders of fowls that have good-sized combs suffer considerable losses from frosted combs. These should be thawed out with snow or cold water and an ointment rubbed in gently with the fingers. A very good ointment for this purpose can be made of 5 parts of vaseline, 2 parts of glycerine, and 1 part of turpentine, according to the Maine Agricultural Experiment Station. This relieves pain and reduces inflammation. Frozen combs mean lowered vitality in the bird's body and seriously decreases fertility in hatching eggs.

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Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and makes hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker, write E. J. Reefer, poultry expert, 602 Chestnut St., Philadelphia, Pa., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his Free poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

Poultry Show Dates

Charleston, W. Va., Jan. 15-20. Julian C. Byrd.
Corry, Pa., Jan. 15-20. L. M. Durham.
Utica, N. Y., Jan. 15-21. L. J. Bushnell.
Oriskany, N. Y., Jan. 22-27. Geo. Huntington, W. Va., Jan. 22-27. Geo. Parent.
Marietta, O., Jan. 22-27. T. N. Fenn.
Middletown, Conn., Jan. 23-26. Charles L. Bliss.

Name following date is secretary of the show, whose address is place stated unless otherwise specified.

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The Incubator with the Parcels Post construction, the choice of America's most successful chicken raisers. Sales to date over $24,000. With the book come full particulars about my Low Price, My 10-Year Money-Back Guarantee, my $1,000 Cold Offers. Your opportunity to make extra money. Write me today. - - Jim Rohan Pres.

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OUR EXPERIENCE POOL

All our readers are invited to contribute their experiences on the topics under discussion. $2.00 will be paid for the best, and $1.00 for the next best contribution, and 50c for each other article published. Contributions must be in our hands 15 days before date of issue.

TOPIC No. 1212, FEB. 1.—What has been your experience feeding corn silage or mixtures of it, to horses, mules, sheep, swine or poultry? Tell how much was given at each feed and what was used with it to complete the ration. What effect does it appear to have on the general health of the animals? Do you save any money by feeding it and selling other farm crops? Do not write about your experience feeding it to dairy and beef cattle; we have had Experience Pools on that subject; confine yourselves to your experience with silage as a feed to stock mentioned in the question.

TOPIC No. 1213, FEB. 15.—What methods do you use for testing your seed corn? Do you use one of the commercial graders now on the market? Do you treat the corn to guard against injury by crows? Tell us of any other way you handle the seed so as to insure a perfect stand of corn.

TOPIC No. 1214, MARCH 1.—Do you find oats a profitable crop? Do you broadcast or drill them and what fertilizer do you use? Can you tell us how much they cost you an acre or a bushel and what they return? What success have you had cutting them green for hay? Have you found any crop which you can profitably substitute for them?

Topic No. 1211.—How do you handle the manure from your stock? Do you have a track carrier in the stable? Do you pile the manure in the barnyard, in a shed or haul it direct to the field? Do you use a spreader? Can you tell us how much it costs to apply a ton of manure to your fields?

R. S. G., Peach Bottom, Pa.—We aim to handle the manure from our stock with the least outlay for time and labor. No track carrier is used, but the stabling is arranged so the spreader is brought to the doors and the manure forked into it. We use the spreader because it is a time and labor saver, and does the work very much better than could be done by hand. It may be interesting to note that during the 15 years our spreader has been in use it has cost but 40 cents for repairs. The amount of manure spread will average 60 loads per year. The manure hauled during fall and winter is applied to sod intended for corn the following season, thus reducing the loss of fertilizer element to the minimum. If for any reason we are not able to haul the manure as made, it is placed under a shed, covering part of the barnyard, where it may be treated to an occasional application of acid phosphate. The cost of applying manure to the land varies. Taken direct from the stables, and figuring on 15 loads per day for short hauls and 10 loads per day for long hauls, with a charge of $4 per day for team and labor, and $1 per day for use of spreader, the cost will average 40 cents per load. When stored under shed then 10 cents per load must be added to cover cost of handling from stables to shed, making a total of 50 cents per 55-bushel load.

H. E. S., Drewrys Bluff, Va.—I have a small amount of stock, just what a 20-acre farm will carry—20 acres besides pasture and woodland. At present I have 2 mules, 2 horses and 5 cows, and get a spreader load about every four days. I do not use a carrier, but I have a good shed behind my horse stable, and a glass window (to let in plenty of light) behind each animal, and I clean the stable through the windows directly into the low-down spreader. Then I drive to the cow stable door and clean the stable, putting cow manure on top of horse manure in bottom of spreader, which helps to hold any liquid that may not be soaked up by bedding. I have concrete floors in all my stables and by using an abundance of bedding I save practically all the liquid. I try to manage to have a piece of sod land to haul on in case of extreme weather. When the land is frozen or dry enough to drive on I put my manure on alfalfa, grass or sod land intended for corn.

To me the strong points in this arrangement are, spreader is always under cover, always in place ready to load. The manure is gotten out before it has time to lose in value. One forking is sufficient.

Frequent cleaning, in hot weather, keeps down the flies, and a great saving in time, which is money. Putting a man's time at $1.25 per day and team at $2 per day, I can get out a load, about 1500 pounds, for about 40 cents.

J. W. G., Glenview, Ky.—The manure from the cow barn is taken to the concrete manure pit in an overhead track carrier. The liquid manure is conveyed to cisterns through pipes leading from the concrete gutters in the cow stables. There are two lines of these pipes leading to two different cisterns. Into one we run the urine, the other receives the wash water from cleaning up after the cows. The liquid manure is pumped into tanks mounted on carts. These tanks are provided with sprinkling attachments through which the liquid manure is applied to the lawn as a top dressing (40 acres in lawn and woodland). The manure from the pit and that from the horse stalls is spread directly on the fields during the fall and early winter and plowed under. During spring time, just before rye, which has served as a winter cover crop, is ready to turn under as green manure, a heavy top-dressing of stable manure is applied with the spreader and plowed under.

During the summer season the manure that accumulates is piled in a large flat pile in close proximity to several cultivated fields and as the crops are gathered this manure is applied and plowed under. We have found that manure left exposed to the action of rain, snow and air loses the best part of its fertility, nitrogen, and the quality of humus made from manure which has become exhausted by leaching, is not equal to that made from fresh manure that is plowed under as soon as scattered.

One man with three horses and the spreader will handle 18 to 20 loads of a ton each when hauled to the furthest field, 24 to 26 in nearby ones; man and team valued at $2.50 per day makes the cost per ton about 10 cents.

H. E. Z., Seven Valleys, Pa.—We keep from 10 to 15 head of horses and cattle, the latter on cement floors in the barn. We also keep from 600 to 1000 head of poultry. We aim to remove the manure from the cow stable twice a week, once a week from the horse stable, and about every ten days from the hen houses. We haul directly to the field, preferably a sod of Red clover or Crimson clover to be turned down for corn or potatoes. We have a manure carrier in the cow stable and it works O. K. Our farm is hilly and so do not use a spreader. We estimate the cost of hauling a ton of manure to the field at from 25 to 40 cents, depending on the distance we have to haul and the kind of manure. We hold there is less expense and less waste by applying the manure direct from the stable to the field than any other way.

W. H. R., Palm, Pa.—I do not have a track carrier to take the manure from the stable, but hope to get one some day. The cow stables are cleaned out every morning, the manure being hauled into a corner of the barnyard with a wheelbarrow. It is then hauled to the field once a week with a spreader. Plenty of cut straw is used for bedding, so practically none of the liquid is lost and in the short time the manure lies in the yard none of the nitrogen or other fertilizing elements escape. We do not take the manure to the field daily, because there would not be enough to make a full load and it would waste too much time to get the horses ready and hitch and unhitch so often.

The cost of appyling manure depends upon the distance it must be hauled. We take about one ton per load, and one man can load and take out around ten loads per day, or one ton per hour, with three horses. Man labor costs me 15 cents per hour, horse labor 16 cents, and equipment 8 cents, so it would cost me 71 cents per ton to apply manure to the field.

W. P. B., Quarryville, Pa.—Our business is feeding steers. At the present time we have 33 head. For the last 20 years we have been hauling the manure direct to the field from the stable. We do not have a litter carrier. We simply back the manure spreader into the stable, throw on the manure and haul it out to the field. We find that this is not only the cheapest way, but we get the greatest amount of plant food out of it. We aim to haul the manure every two weeks, depending on weather conditions. We do not want to have the manure accumulate in the horse stable for such a length of time. This is hauled out of the stable with a wheelbarrow into a covered shed, where the rain cannot leach it, and spread apart thinly so it will not heat, with the corresponding loss of nitrogen. We find that this is the cheapest way to handle manure. A spreader load will weigh about a ton. One man and myself usually haul 12 loads in 8 hours. We consider the manure spreader a great labor saver.

C. J. G., Rossville, Md.—To handle manure economically and to get the most benefit from it, too much cannot be said in favor of the manure spreader. I have one and I find it about the most useful and most used implement on the farm. In our section of Baltimore Co. nearly every farm is given over to the raising of vegetables for the wholesale market, and I, like most of my neighbors, being very busy during the summer months, make and haul the biggest portion of the manure during the three winter months.

Nearly all of the stable manure I haul on my spreader direct to the field and spread as a top-dressing on kale, or spinach, providing, of course, that the land is not too soft to drive on. If we have a soft spell and cannot use the manure spreader, I have it hauled out and put in a large flat pile about 3 or 4 feet high, well packed down.

I have only a few cows, and these are kept in a stable to themselves, with a barnyard about 60 feet square. The manure from this stable is spread out on the field also, if possible, and if not, it is spread in the barnyard together with plenty of straw or marsh grass to absorb all the liquid portion. In the spring as soon as plowing begins we haul the manure from this yard and spread on the land about to be plowed. During the winter when the roads are in condition I haul from 50 to 75 4-horse wagon loads of manure from the city. This will cost from $1 to $1.50 a load of about 2 to 3 tons. By sending in a load of cordwood it about pays for the manure and hauling. Taking the manure I buy, with what we have at home, the average cost applied to the land will come somewhere near $1.50 per ton.

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Spade-dug holes, like pots, confine and cramp the roots. Set your trees out in blasted holes. Stop the big percentage of early losses. Make them grow sturdy, hearty and fast. Cash in on your investment quicker by getting earlier yields.
DU PONT
Red Cross Farm Powder
lightens labor and increases profits. It loosens the earth, makes better rootage and provides increased nourishment for young trees. It rejuvenates old trees and makes them bear.
Drawn from actual photo.—Note marked difference in growth between tree planted in blasted hole and tree planted in spade-dug hole.
Practical Proofs
E. J. Barker, Beech Bluff, Tenn., says: "I would not set trees without first subsoiling with explosives, even if it cost four times the amount."
J. C. Saylor, Penna., says: "Blasted trees the finest in the orchard."
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Describes the use of Red Cross Farm Powder for tree planting, land clearing, subsoiling, ditching and many other things. Tells what this modern method has done for hundreds of orchardists and farmers. Write to-day for this interesting 188-page
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This General Purpose Plow is guaranteed to do the best work of any General Purpose Plow.
Long Beam, High Throat, No Choking. Light draft, steady, and easily handled.
We make plows for every purpose and use only the best grades of iron, mixed with the utmost care to ensure strength. The Moldboards are perfectly chilled, will wear 12 years. Shin Piece chilled, extra long, chilled landside.
Thousands of farmers who use Le Roy General Purpose Chilled Plows say they will do the work where others fail. Perfect satisfaction guaranteed.
Ask your dealer about Le Roy Plows and write to-day for catalog to
LE ROY PLOW CO., Le Roy, N. Y.

I. G. S., Union, O.—It is our custom to haul manure direct to the field as it is made by our large number of horses, cows and sheep. It is generally applied to a sod field that is to be turned under and planted to corn. In the spring time when the fields and lanes are too soft to permit hauling, the manure is ricked behind the horses and cows until conditions are right for hauling. The stables are extra wide, with plenty of room back of the animals. This method may seem like a slovenly one, or the lazy man's way of doing things, but we cannot afford a covered barnyard and want to get the most possible good out of the manure. This is especially true at this time, when all fertilizer materials are high in price and the manure is from animals that have been fed high-priced feeds, rich in protein, which make valuable manure. Of course, the sheep manure is only taken from the stables every few months.

A large apple orchard is on the farm, which has a growth of heavy blue grass, and it is our custom to mulch the orchard every year with manure and, of course, this affords a place to haul it when cleaning the stables and the fields are too soft to permit hauling on. The manure will not cut in this blue grass sod even in the wettest weather. We have used a manure spreader for some ten years and it is one of the most valuable implements we possess. No manure is left to leach in the barnyard except what collects around the straw stack when feeding cattle in the open. No account has ever been kept of the cost of covering an acre of ground with manure.

H. P. T., Ulster, Pa.—Our method of removing manure, we believe, is the easiest and most economical of time and labor, and has the least loss of fertility. Four years ago we put in a concrete floor in the basement of our barn, and arranged so that our stock stood tails toward the center driveway. We have stanchions for 34 head and they make a good load each day. The first season we used a wagon with satisfactory results. The next fall we bought a spreader. In buying a spreader care should be used to get one adapted to the hauling of manure direct from the stable. We made the mistake of buying the wrong kind and it gives us some trouble with the apron. The cost of a good spreader is not much more than a carrier with tracks. I can harness our team, hitch on spreader, put on manure from all our stock, drive to the field and spread in one-half hour; figuring labor at 40 cents per hour would make the cost of removing our manure 20 cents per day for 34 cattle and 4 horses.

The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address
WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

FEBRUARY 1.—In what ways during the past year have you made extra spending money for yourself or for some special purpose? Describe fully any method which you have found particularly profitable, especially any new plan.

FEBRUARY 15.—Tell us about keeping summer boarders. What things do you do which seem to please them the most? How much do you charge a week and do you find it a profitable undertaking?

MARCH 1.—What have you found to be the greatest labor saving device for your inside duties? Tell us how much it cost and what influenced you to buy or install it. What are some of its advantages?

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

Do you utilize the culls from your orchard and vineyard—apples, peaches, pears, plums or grapes—and if so, how do you do it? Do you consume all these cull products at home or do you have some to sell, and if so what prices and profits do you get from them?

Mrs. M. B., Blanchard, Pa.—My husband says that if there is one verse of Scripture which I obey literally it is: "Gather up the fragments that nothing be lost." So, of course, I utilize the culls of the fruit, of which we have an abundance of all kinds. However, I am not the type of woman who sells the choice fruit, leaving the culls for her family, nor do I care to make extra money merely that it may be put in the bank. I like to practice economy and utilize every product of our farm that we may have the money for the comforts and little luxuries that make our home, to all the family, the most attractive place we can find.

All the culls of the apples, peaches, pears, plums, etc., I make into jelly or marmalade, some of which we keep for home use, and the rest I sell at 15 cents per glass in a nearby town to regular customers. The culls of the grapes I make into grape juice. Here are my last year's profits.

500 glasses of jelly at 15c.	$75.00
80 ½-pint bottles grape juice at 25c.	20.00
Total,	$95.00
225 lbs. of sugar at 8c.	$18.00
Profit,	$79.00

I did not count cost of glasses or bottles, which I bought some years ago, and which my customers return to me each year.

Mrs. S. M. J., Kentwood, La.—We keep our orchard well sprayed and do not have as many waste apples as our neighbors. But an occasional codling moth or wind storm brings down quite a few during the summer and fall months. These I gather, wash, quarter, cut out all imperfections, stew until tender and mash through a colander, which is easier than peeling them. Return to the fire, sweeten, add spices to taste, cook until quite thick and can. When apples are large I peel and stew, or bake in a covered pan with sugar to make syrup enough to cover, adding nutmeg to some jars and spices to others.

If I can pick up a few quarts of cranberries at a bargain I stew them with apples in any proportion, and make a delicious sauce. When my jars are full I dry the remaining apples. I use a peeler, but windfalls do not make nice rings, so I cut fruit in quarters by hand, dip in weak salty water (1 part salt to 99 parts water); this makes the dried fruit lighter in color and does not affect the taste at all. I spread on my porch roof to dry.

We use our cull peaches to can as pie peaches. The fruit that is not fit for table use we feed to the pigs.

The little shabby bunches of grapes I pick off and can for pies, or cover with boiling spiced vinegar for pickle.

Mrs. E. E. R., Reading, Pa.—Apples are our most important fruit crop, and therefore we have most culls in that line. All are consumed at home, as we have our own cider press. Before the apples are ripe enough for apple butter, they are made into vinegar, which sells a year later for 12 or 15 cents a gallon. Later, when the apples are ripe enough to cook soft, the second grade are used for dried apples and the culls made into cider and boiled into apple butter.

We figure 30 bushels of apples at 10c. a bushel, 6 bushels of seconds at 40c. a bushel, which make about 60 gallons of cider and 3½ bushels of dried apples. Thirty-five pounds of granulated sugar are added, which brings the cost of material to $7.85. This amount makes not less than 25 gallons of apple butter, which we sell at 25c. a quart, or 85c. a crock. Twenty-five gallons are worth $21.20; by deducting $7.85 we have $13.45 for our labor, which is done in two days. We boil from 50 to 150 gallons each year.

Peach culls are sold at the orchard for 25c. a basket. What are unfit for sale are fed to the pigs, which make good growth on them.

Mrs. N. M. R., Ozark, Ill.—My method of utilizing cull fruit and vegetables is not a new way of doing it, but it would be new business to many farm housewives. I have two quite large girls, and also two boys, and they are as good helpers as ever could be. We do not have a large orchard, but try to make what we have profitable. Of course, all good stuff is sold except what we desire for ourselves, and then the culls are worked up and canned with our canning machine. My husband sells lots of produce direct from the wagon in town, and I often go with him and take a lot of canned goods and things out of season, which sell readily; besides, we have quite a good trade worked up with our grocerymen in town. It is astonishing the amount of stuff that can be put up from culls from a small orchard, and in the end it will be surprising the amount of money this stuff will bring when it is saved. It is very pleasant work, keeps the young folks interested,

Zero Outside Summer Within
IN thousands of happy homes, people are living in solid comfort because they own a Caloric Pipeless Furnace. This is the furnace that warms a house through *one register*. Entrance hall, living room, dining room, bathroom and all upstairs is just like toast, regardless of how the winds may howl outside.
There is but one register hole to be cut in the whole house, and of course no pipes to clutter the cellar and carry dust upstairs. The
PIPELESS CALORIC FURNACE
The Original Patented Pipeless Furnace
can be installed at any time without inconvenience. It saves 35% of fuel (abundantly proved by testimony) because its heat is direct and because a patented triple casing, without which no pipeless furnace can be a success, prevents radiation in any direction except up through the register.
Mr. John E. Drach, New Windsor, Md., writes this: "Our house has ten large rooms and is on a high hill. Two rooms are exposed to the north winds but the furnace heats them just the same as the other rooms." Hundreds of people write such letters—we've a book of them. Suppose you write Mr. Drach yourself, sending him a self-addressed, stamped envelope, and get his testimony direct.
There's a Caloric dealer in your town—see him soon. If you don't know who he is, write us and we'll tell you.
Let us send you our free booklet containing our remarkable guarantee.
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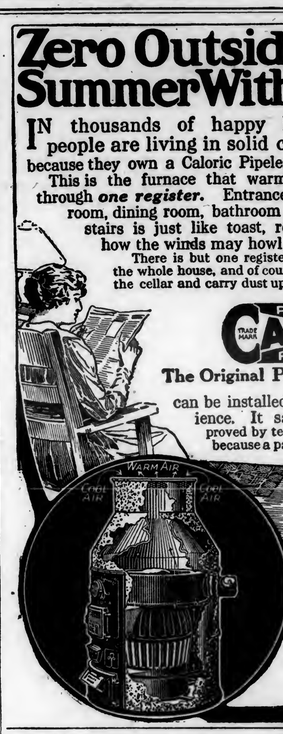

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Eliminates the out-door privy, open vault and cesspool, which are breeding places for germs. Have a warm, sanitary, odorless toilet right in your house. No going out in cold weather. A boon to invalids. Endorsed by State Boards of Health.
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Coffee Facts
Nearly every man and woman enjoys a cup of good coffee and while care should be exercised in making coffee for the table, much depends upon the roasting and curing of the coffee berry to give you the best results.
Reid's No. 7 Coffee
is different from any coffee sold in the United States because it is so roasted and cured that all of the objectionable features have been removed. Rich, smooth, fragrant and pleasing. Sold outside of Philadelphia by mail only. Three pound package sent anywhere on receipt of $1.00. One package will make you a regular buyer. At least ten extra cups to the pound.
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30 Days Trial of the "EASY" Vacuum Washer takes you away from washboard drudgery forever. Try it *now* before the heavy washing drags the life out of you by the old laborious process. See how it seems to have the washing easy for one month. Write today for information.
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ESTABLISHED 76 YEARS

and they are allowed to share in the money and thus we have been able to keep them contented on the farm.

I often see large piles of apples and other stuff lying on the ground, and because there is no ready market for it in the green state it rots, while it could be made quite profitable if properly put on the right market. Too bad to think of this when there are lots of people who need the food, and the farmer also often needs the money. If he realized how easy it is to get the cash out of such culls there would be much less waste. I can put up and sell cheaper than the factory can and still live, for it is turning a waste into profit, as we already have the good stuff sold and the culls would go to waste otherwise.

Mrs. C. P. D., Mallet Creek, O.—There are many ways in which one can utilize the waste products and at the same time receive considerable revenue, which helps out at this time of year toward furnishing Christmas gifts for your friends. This fall we had a great many apples and pears that were not salable on the market; we also had a surplus last year which we had made into jelly at the cider mill. We stewed and sifted our pears and apples half and half, then took about one quart of jelly to one gallon of sauce and stewed it down thick, then added 2 cupfuls of sugar and any spices we cared to. We sold all of this product we could spare at $1 per gallon, the purchasers declaring it the best they had ever tasted.

From our vineyard we make grape juice from the smaller stems that would not sell on the market. This sells readily to our city customers at a good price. To make this we stem the grapes, cover with water and cook them about 30 minutes, drain them over night; in the morning measure the juice and add a cupful of granulated sugar for every 3 quarts; boil four minutes and bottle.

A nice way to dispose of extracted honey that has candied, is to cut it into cubes and dip in melted chocolate. This sells readily at from 40 to 60 cents per pound. With a load of these products in the auto my husband and I visit Cleveland occasionally (about 30 miles distant) and at night return $10 to $15 richer, besides having a sort of holiday.

Mrs. J. A. C., Swanton, O.—I will not say that we make use of all the culls from the orchard, as that would be almost impossible, but as the small perfect fruit is just as good as the larger, we sell the large and use the small and imperfect fruit for home use. I always dry apples and peaches for pie in winter. Peel them, remove core or seed and put out in the sun as soon in the morning as possible. If the sun is hot, as it is in summer, fruit will dry almost enough in one day. We like dried pears, too, but always take those too ripe to take to market. Peel, core and dry them in the oven, as the hot sun is too slow for ripe pears; they are too full of sugar. We also can, preserve, make jelly and butters of the culls. What cull apples we cannot use for house use we make into cider, which makes vinegar and will sell at a good profit. All the fruit we can dry extra finds a good sale at the local stores. I often can fruit juices and make jelly in the winter when sugar is cheap. The cull grapes never go begging, as we can grape juice to drink. The children just love it, but do not care for wine. We all like grape butter, and I believe it could be sold to a good advantage at the home stores. We can always sell all the apple butter we make, for from 50 to 75 cents per gallon. We get 20 to 25 cents per gallon for good apple vinegar.

Mrs. H. D. S., Schnecksville, Pa.—The culls from most of the fruits raised on our farm are made into jams, jellies and marmalades for home use. A good many cull and windfall apples we make into apple butter. It is boiled out of doors in a big copper-lined iron kettle. A similar kettle of boiling cider is kept over the fire and added to the apple butter as needed. The apples must be stirred constantly to prevent scorching. It must be cooked for several hours, or until a little placed in a dish does not appear watery. To 12 pails—each holding 12 liquid quarts—of the pared and quartered apples—"schnitz" the Pennsylvania Germans call them—we use one barrel of cider, 40 pounds of granulated sugar, ¼ pound each of cinnamon and cloves. This makes about 26 gallons of apple butter. We dispose of it to customers to whom we sell other produce. We have several families who take 10 gallons each year, and we received one order this year for 20 gallons. We deliver it in gallon crocks, and receive 75 cents a gallon, but refund 10 cents for each empty crock returned.

Any additional surplus of apples we make into cider, which we allow to become vinegar. We have three or four barrels of vinegar for sale each year. This brings us 20 cents a gallon at retail, or 15 cents wholesale.

Our surplus grapes we make into grape juice, canning it in glass fruit jars, and find it keeps perfectly. We have never tried to sell it, but believe we could easily make a market for it, as it is as good as any of the highly advertised brands.

Pennsylvania Farm Products Show

Thousands of farmers are expected to attend the State Corn, Fruit, Dairy Products, Vegetable and Wool Show and the meetings of the various agricultural associations to be held at Harrisburg, January 22 to 26, and the week promises to be the most important from an agricultural standpoint in the history of the industry in the state.

The show itself will be a monster event, with corn, fruit, vegetables, butter, milk and wool from all sections and there will be much rivalry for the cash prizes which have been tendered for the winners in the various classes. The county class will determine the champion corn county in the state, but the competition promises to be very keen in all classes. Already hundreds of ears of corn and many boxes of apples have been received by the Pennsylvania Department of Agriculture for exhibition at the show. No entrance fee is required and entries will be received as late as Wednesday morning, January 24. Premium list and entry blanks can be obtained from E. K. Hibshman, State College, Pa.

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8102.—Ladies' waist. Cut in sizes 36 to 44 inches bust measure. The waist is made with yokes at the front and back, center-front and front yoke are in one.

8112.—Children's dress. Cut in sizes 4, 6, 8 and 10 years. Long or short sleeves may be used and the dress has a two-gored plaited skirt.

8109.—Infant's kozywrap. Cut in sizes ½, 1, 2 and 3 years. The pattern consists of a wrap, hood and pad.

8119.—Girls' dress. Cut in sizes 6, 8, 10 and 12 years. The dress has a separate Bolero, one-piece skirt and long or short sleeves.

7928.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. This waist is cut in the new style; the back and front yoke are in one piece.

8106.—Ladies' coat. Cut in sizes 36, 38 and 40 inches bust measure. Cheviot, serge or chinchilla may be used for this coat.

8133.—Boys' Russian suit. Cut in sizes 2, 4 and 6 years. This suit has a smart closing outline, is fitted with a pocket and has straight trousers.

8137.—Misses' dress. Cut in sizes 14 to 20 years. The dress has a plain waist and a three-gored skirt.

7543.—Children's dress. Cut in sizes 2, 4 and 6 years. Wash materials, serge or corduroy can be used for this dress.

8129.—Ladies' dress. Cut in sizes 36 to 42 inches bust measure. The dress is cut in one piece.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

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See that "knife-and-plate"—how they work in absolute contact with each other. The "Enterprise" razor-edged, four-bladed steel knife and perforated steel plate cut meat and all food into tiny, tender morsels just like a pair of shears would cut. They do not rend, tear, mash or squeeze out the rich, nourishing juices. All the original flavor and nourishment of the food is retained. The

"ENTERPRISE" Meat-and-Food Chopper

is made in 72 sizes. For household use, No. 5, Family size, $2.00; No. 10, large size, $3.00.

Your dealer can supply you. Look for the name "Enterprise."

A different type of chopper, at a lower price, is the "Enterprise" Food Chopper, having four cutters. Small size, $1.25. Family size, $1.50. Large size, $2.25.

Send 4c in stamps for "The Enterprising Housekeeper" containing 200 tested recipes and household hints.

THE ENTERPRISE MFG. CO. OF PA.
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My Catalog No. 1

—an illustrated book of 64 pages, tells all about them and describes also all "the good old varieties" of small fruits. It gives instructions for planting and culture, and tells about the Bess Lovett Rose that I am giving away. In it are also offered a full line of superior Roses, Fruit Trees, Ornamental Trees, Shrubs and Vines, the best Nut Trees, Hedge Plants and Garden Roots. Send for it today. It is free. Quality unsurpassed—prices low. 39th year—200 acres.

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Practically a Daily at the Price of a Weekly. No other Newspaper in the world gives so much at so low a price.

The value and need of a newspaper in the household was never greater than at the present time. The great war in Europe is now half-way into its third year, and, whether peace be at hand or yet be far off, it and the events to follow it are sure to be of absorbing interest for many a month to come.

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THE THRICE-A-WEEK WORLD'S regular subscription price is only $1.00 per year, and this pays for 156 papers. We offer this unequalled newspaper and The Practical Farmer together for one year for $1.15

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For fast, thorough spraying, covering every leaf in record time with a clinging high-powered spray, use

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Catalog showing everything from 200 gallon rigs to pocket pumps free on request.

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Pumps for all farm uses

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Total Nitrate deposits in Chile	720 million tons
Estimated life of deposits at present rate of World's consumption	300 years

For Reliable Information Write

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There should be a SIMPLEX TESTER on your FARM, to SHOW you the amount of lime and ground limestone your soil contains and the amount you should apply to correct the acidity of your soil. A sample of soil and ½c worth of acid and in five minutes time, THE SIMPLEX SOIL TESTER shows you exactly what you are doing at all times. IT WILL NOT PAY YOU TO GUESS ANY LONGER.

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Grind corn and cobs, feed, table meal and alfalfa. On the market 50 years. Hand and power. 23 styles. $2.90 to $40. FREE TRIAL. Write for catalog and farm machinery bargain book.

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$10,000.00 Backs this Hertzler & Zook Portable Wood SAW

This is the cheapest saw made. Only $7.90 saw frame to which a ripping table can be added. Guaranteed 1 year, money refunded and all charges paid if not satisfactory. Write for catalog.

Hertzler & Zook Co., Box 25, Belleville, Pa.

SAW YOUR WOOD

With a FOLDING SAWING MACHINE. 2 CORDS by ONE MAN in 10 hours. Send for Free catalog No. E 61 showing low price and latest improvements. First order secures agency. Folding Sawing Mach. Co., 161 W. Harrison St., Chicago, Ill.

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48-page book on rupture sent free—now or over. Nothing to be returned.
Plapao Laboratories Inc., Block 115, St. Louis, Mo.

Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

(Copyright 1916, The Bobbs-Merrill Company)

CHAPTER IV.

THE WOMAN'S CLUB.

Persis Dale was under no misapprehension regarding her standing in the community. She fully appreciated the fact that she was a pillar of Clematis society and would have accepted as her due the complimentary implication of Mrs. Warren's post-card, even if its duplicates had not offered a similar tribute to at least thirty of her acquaintances. The invitations were all written in Mrs. Warren's near-Spencerian hand, the *t's* expanding blottily at the tips, the curves of the capitals suggesting in their sudden murky expansion, the Mississippi River after its union with the muddy Missouri.

"As one of the representative women of Clematis, you are invited to attend a meeting at the home of Mrs. Sophia Warren, Saturday the 12th inst. at 2 P. M. Object of meeting the organization of a Woman's Club for the purpose of expanding the horizon of the individual members and uplifting the community as a whole. Please be prompt."

The arrival of the postman while Persis was busy with a fitting, gave Joel time to examine the mail and frame a withering denunciation of Mrs. Warren's plan. He sprung the same upon his sister with pyrotechnic effect a little later.

"A woman's club! Clematis *is* getting on. Pretty soon the women'll be smoking cigarettes and wanting to run for mayor and letting their own rightful sphere go to the everlasting bow-wows. Expand their horizons! What's the good of a horizon to a woman who's got a house to look after, and a man around to do her thinking for her? If women folks nowadays worked as hard as their grandmothers did, we wouldn't hear any of this nonsense about clubs. As good old Doctor Watts says:

"'For Satan finds some mischief still
For idle hands to do.'"

Persis, arranging a cascade of lace, over the voluptuous bosom of her adjustable bust-form, stood back to get the effect. "Maybe you're right, Joel," she acknowledged placidly, "but I'm going to that meeting at Sophia Warren's Saturday, if I have to sew all Friday night to get my week's work out of the way."

In the face of masculine scoffs, which sometimes, as in Joel's case, became denunciatory rather than humorous, about twenty of the representative thirty Mrs. Warren had called from her list of acquaintances, accepted the invitation and were on hand at the hour designated. The opposition of sundry husbands and fathers, as well as of those unattached males who disapproved of women's clubs on general principles, had lent to the project the seductive flavor of forbidden fruit. The women who donned their Sunday best that Saturday afternoon had an exhilarating sense of adventure. Even Annabel Sinclair, invariably bored by the society of her own sex, made her appearance with the others and from her post of observation in the corner, noted the effect of lavender on Gladys Wells' complexion, and wondered that Thad West's mother didn't try anti-fat.

As the clock struck two, Mrs. Warren rose with a Jack-in-the-box effect from behind the table where she had ensconced herself after welcoming the last arrival. Mrs. Warren had taught school before her marriage and under the stimulus of her present responsibility her voice and manner reverted to their earlier pedagogical precision. As she rapped the assembly to order, she had every appearance of a teacher calling on the A-class to recite

"Ladies, I am glad to see so many of you punctual. Miss Persis Dale has sent word that she will be detained for a little by the pressure of Saturday's work, but that she will join us later, and undoubtedly other tardy arrivals will have excuses equally good. And now, ladies, the first business of the afternoon will be the election of a chairman."

"Oh, you've got to be chairman," observed Mrs. West conversationally from the largest armchair. "None of the rest of us know enough." Corroborative nods and murmurs approved the suggestion, and Mrs. Warren acknowledged the compliment by a prim little bow.

"Do I understand you to make this in the form of a motion, Mrs. West?"

"Why, ye-es, I s'pose so," returned Mrs. West, visibly startled by the suggestion that she had performed that feat without a realizing sense of its momentous character.

"Is there a second to this motion?"

The chilling silence, which the first hint of parliamentary procedure imposes on the most voluble gathering, unaccustomed to its technicalities, was broken at length, by the voice of Susan Fitzgerald, who said faintly, "I do," and blushed to the roots of her hair.

"You have heard the motion, ladies. All in favor signify it, by saying *aye*."

Twenty voices in unison gave an effect at once businesslike and harmonious; and the representative women of Clematis looked vaguely pleased to find their end so easily attained.

"Contrary-minded, the same sign." A breathless pause while the assembly waited for the daring opposition to manifest itself. "The motion appears to be carried, carried unanimously, ladies. I thank you for your confidence. We shall now proceed to consider the best method of organizing ourselves so as to expand the horizon of the individual members'—Mrs. Warren was quoting, unabashed, from her own post-card—"in addition to uplifting the community as a whole."

The chairman went into temporary eclipse by taking her seat, and the gathering no longer frozen into speechlessness by the realization that there was a motion before the house, rippled out in brook-like fluency.

"I think a card club would be just too grand for anything," gushed Gladys Wells with an effect of girlishness, quite misleading. "My cousin in Springfield belongs to a card club, and they have just the grandest times. Everybody pays ten cents each meeting, and that goes for the prize. My cousin won a perfectly grand cut-glass butter dish."

"I don't see how parlor gambling would help uplift the community," commented Mrs. Richards coldly from the opposite side of the room.

The seemingly inevitable clash was averted by Susan Fitzgerald, who rose and addressed the chair, a feat of such reckless daring as to reduce the assembly to instant dumbness.

"Mrs. President, I think a suffrage club is what we need in Clematis 'most of anything. We women have submitted to being downtrodden long enough, and the only way for us to force men to give us our rights is to organize and stand shoulder to shoulder. It's time for us to arise—to arise in our might and defy the oppressor."

Susan subsided, mopping her moist forehead as if her oratorical effort had occupied an hour, rather than a trifle over thirty seconds. Gradually the meeting recovered from its temporary paralysis.

"If it's going to be that sort of a club, I'm sure Robert wouldn't approve of my having anything to do with it," Mrs. Hornblower remarked with great distinctness, though apparently addressing her remarks to her right-hand neighbor. "Robert isn't what you'd call a tyrant, but he believes that a man ought to be master in his own house. If he thought there was any danger of my getting interested in such subjects, he'd put his foot right down and that would be the end of it."

The ghost of a titter swept over the gathering. Mrs. Hornblower, though fond of flaunting her wifely subjection in the faces of her acquaintances, never failed to get her own way in any domestic crisis where she had taken the trouble to form a preference. And on the other hand, poor susan Fitzgerald, for all her blustering defiance of the tyrant sex, could in reality be overawed and browbeaten by any male not yet out of kilts. Before the phantom-like laughter had quite died away, Mrs. Hornblower added majestically: "But I don't want my opinions to count too much either way, as I may be leaving Clematis before long."

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the incidental uplift of the community, was immediately relgated to the background of interest. "Leaving Clematis!" exclaimed a dozen voices, the accent of shocked protest easily perceptible above mere surprise and curiosity.

Mrs. Hornblower, in her evident enjoyment of the sensation of which she was the center, was in no hurry to explain.

"We're thinking of selling the farm and investing in an apple orchard," she announced at length. "Robert's worked hard all his life, and we think it's about time he began to take things easy. The comp'ny undertakes to do all the work of taking care of the orchard and marketing the fruit for a quarter of the net profits, and that'll leave me and Robert free to travel 'round and enjoy ourselves. We're looking over plans now for our villa."

Even Annabel Sinclair straightened herself suddenly, galvanized into closer attention by that magic word.

"I've heard tell that there was lots of money in apples," exclaimed Mrs. West. "But I didn't s'pose there was enough so that folks wouldn't need to do any work to get it out."

"You see, people in general don't appreciate what science and system can do," patronizingly explained Mrs. Hornblower. "If you'd read some of the literature the Apple of Eden Investment Comp'ny sends us, it would be an eye-opener."

"Ladies, ladies!" expostulate the chairman, "we are forgetting the object of our meeting." Then temporarily setting aside her official duties in favor of her responsibility as hostess, she hurried forward to greet a new arrival. "So glad to see you, Mrs. Leveridge. But I'm sorry you couldn't persuade young Mrs. Thompson to accompany you."

"She'd agreed to come," replied Mrs. Leveridge, loosening her bonnet-strings and sighing. "But at the last minute she found it wasn't possible."

The room rustled expectantly. There is always a chance that the reason for a bride's regrets may be of interest.

"Nothing serious, I hope," said Mrs. West insinuatingly.

Mrs. Leveridge's sigh was provocative of further questions.

"Well, no, and then again, yes. It isn't anything like a death in the family. But you don't have to live long to find out that death ain't the worst thing."

"My goodness, Minerva," exclaimed Susan Fitzgerald, aghast. "What's happened?"

Mrs. Leveridge's deliberative gaze swept the silently expectant company.

"Of course, I wouldn't repeat it everywhere. But I'm sure anything I say won't go a step further."

Twenty voices replied, "Of course not," with a unanimity which gave it the effect of a congregational response in the litany.

Mrs. Leveridge, having made terms with her conscience, from all appearances rather enjoyed the responsibility of enlightening her audience. "It's her husband."

"Her husband!" cried Susan Fitzgerald protestingly; "why, she hasn't been married six months."

Mrs. Leveridge's smile showed more than a tinge of patronage.

"If you'd ever been married yourself, Susan, you'd know that six months was enough, quite enough. If he's that kind of a man, six weeks is about as long as he can keep on his good behavior."

"He hasn't been beating her, has he?" asked Mrs. Hornblower, her voice dropping to a thrilled whisper.

"No, I'd call it worse than that myself. You see when I stopped for Mis' Thompson, on my way here, I found her crying and taking on something terrible. She had a letter in her hand, and of course I s'posed it had brought some bad news that was working her up, and I begged her to tell me about it so's to ease her mind, you understand.

"Well, she kept on moaning and crying, and at last it all came out. It seems that when she went to the closet to get down her jacket, a coat of her husband's fell off the hanger. The pockets was stuffed with letters, the shiftless way men-folks have, and they went sprawling all over the floor. She picked up this among the rest. It was addressed to W. Thompson, at some hotel in Cleveland, and it had been forwarded to the city office of his firm. And seeing it was a dashing sort of writing that stretched clear across the envelope, and didn't look a mite like business, she was curious to know what it was about."

"Now, don't tell me there was anything bad in that letter," implored Mrs. West. "I always thought young Mr. Thompson had such a nice face."

"Well if handsome is that handsome does, he hasn't any more looks to boast of than a striped snake. It was a letter from a girl, a regular love-letter from start to finish. It opened up with 'Tommy Darling.'"

"But young Mr. Thompson's name is Wilbur," somebody objected.

"I guess the Tommy was pet for Thompson. The envelope was directed to W. Thompson and you can't squeeze a Tommy out of a W, no matter how hard you try. The girl, whoever she is, has gone into it with her eyes open. Two or three times she dropped little hints about his wife. Didn't say *wife* right out, you know. It was kind of veiled, but you couldn't help understanding."

"Was there any name signed?" asked Annabel Sinclair, opening her lips for the first time that afternoon. She herself had long before realized the unadvisability of signing one's name to one's epistolary efforts.

"'Twas just signed 'Enid.' There was a monogram on the paper, but I couldn't make it out. Seems as if you could find 'most any letter in a monogram. The paper was nice and heavy and all scented up. Poor Mis' Thompson!"

"She ought to leave him," exploded Susan Fitzgerald. "And I shouldn't blame her a mite if she poisoned his coffee first. If women could vote, they'd send a man like that to the gallows."

Mrs. West championed the absent sex. "In a case of that sort, Susan, you can't put all the blame off on to the man. There's a woman in it, too, every time, and the one's as deep in the mud as the other is in the mire. And like as not," continued Mrs. West, a tell-tale tension in her voice, "he was a nice, clean-minded young man when she came along, making eyes at him, like a snake charming a sparrow. I'm not crazy about voting, but if I had the ballot, I'd vote for locking up those kind of women and keeping every last one of 'em at hard labor for the term of their natural lives."

The moment was electric, and Mrs. Warren hastily proffered her services as a lightning-rod. "Is she going to leave him, do you think?"

"Well, I guess she's got a crazy notion in her head that maybe he can explain. I tried to talk her out of that idea. As I said to her, a man capable of anything of that sort won't stop at lying out of it. And I should judge," concluded Mrs. Leveridge, "that young Mr. Thompson would be capable of a real convincing lie. He don't look wicked, but he does look smart."

The outer door opened and closed with an impetus just short of a slam, irresistibly suggestive in some obscure fashion, of the entrance of ardent youth. "I didn't think 'twas worth while to ring," explained Persis Dale, nodding to the right and left as she advanced to greet her hostess. "Sorry to be so late. I guess you've got everything pretty nearly settled by now." She bowed rather stiffly to Annabel Sinclair, sitting silent in her corner, and acknowledged with reluctant admiration that the woman certainly was a credit to her dressmaker.

A guilty constraint settled upon the gathering so fluent a moment before, and psychologically considered, there was food for reflection in the sudden embarrassed silence. These good women were far from being vulgar gossips with one or two possible exceptions. They were shocked at this unanticipated revelation of human perfidy. The young wife, humiliated and heart-broken before the morning glow of romance had faded from her marriage, had their profoundest sympathy. Yet when the curtain rises on a human drama, however tragic its development, the little thrill that runs over the audience is not altogether unpleasant. Regrettable as it is that Othello should smother his wife, there seems a certain gratification in making ourselves familiar with the details of the operation. It was the consciousness of this unacknowledged satisfaction which rendered Mrs. Warren's guests abashed at Persis' advent, like children discovered in some forbidden pastime. They avoided one another's eyes, assuming an expression of grave absorption, whose obvious implication was that the uplifting of the community was the matter most in their thought.

With all her interest in other people's affairs, the personality of Persis Dale was as a killing frost to many a flourishing scandal. She had a readiness to believe the best, a reluctance to condemn her fellow men on anything short of convincing proof, fatal to calumny. Although perhaps justified in thinking the worst of young Mr. Thompson, no one present felt disposed to enlighten Persis as to the character of the discussion which had engrossed a gathering convened for the high moral purposes outlined on Mrs. Warren's post-card.

"I—we—well, we have not reached any conclusion as yet," explained the chairman of the meeting, with a notable accession of color. "Several suggestions have been made, however, and we hope you will have something to add."

Persis would not have been Persis had she failed to have something to suggest. Whether her businesslike methods aided in bringing matters to a focus, or whether the change was due to a conscience-stricken reaction on the part of the representative women of Clematis, it is certain that the deliberations of the body were not again sidetracked by the intrusion of personal matters. The business of the afternoon was transacted with a rapidity putting to shame some more pretentious conventions, the women wisely refusing to be hampered or restricted by the tangles of parliamentary law, in which, as every one knows, much really important legislation is strangled.

When the meeting adjourned at quarter of six, an hour which sent prudent housewives scurrying homeward, Mrs. Sophia Warren was the duly elected president of the Clematis Woman's Club, while Susan Fitzgerald had accepted the duties of secretary of the organization. The members had voted to meet weekly, taking up the study of English literature, and current events, the two subjects to divide the program equally. The club was to hold itself in readiness to grapple with questions of civic improvement, and already a committee had been appointed to arrange for a Harvest Home Festival at the county almshouse for the edification of the inmates. It really began to look as if the horizon of a number of people would be enlarged and the community as a whole uplifted, with or without its consent.

(*Continued next issue.*)

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LIVE STOCK & DAIRY

Edited by W. H. TOMHAVE

Care of Lambs

The lambing time of the ewe flock is one of the most important in the entire management of sheep on the farm. The gestation period is from one hundred and forty-seven to one hundred and fifty days. If a breeding record is kept, it is comparatively easy to know just when the lamb crop may be expected. If the ram has been permitted to run with the flock, the exact date of breeding may not have been recorded, so that the individual ewes must be closely observed.

The usual signs of lambing are that the ewe will stand around and seek places where she can be alone in a corner of the pen or yard. Another sign is the unusual distention of the paunch and the enlarged udder. This is especially noticeable a day or two before the ewe is to lamb.

It is a good practice to trim the tags of wool from around the udder a short time before the ewes are expected to lamb. Unless this is done the lambs are apt to get them in their mouths in attempting to locate the teats, and often serious intestinal trouble is caused. It is best to do this on a mild day so as not to expose the udder too suddenly to the severe winter weather.

The profits from a flock of sheep are dependent, to a large extent, upon the number of lambs that are saved. It is well to have a place where the ewes can be put, so that they are not in with the main flock at the time of lambing. As soon as the lambs are born each ewe should be made to know her own. There is usually very little trouble from this source. If it is possible, have the ewe lick the lamb dry. If there is difficulty in getting her to do this, it may help to sprinkle the lamb with a small amount of salt.

A critical period in the life of a lamb is during the first two or three days. If at all possible, they should be kept in a fairly warm or comfortable place. At the end of a few days they can withstand a great deal of cold, as long as they are kept dry.

The lambs should be allowed a small amount of grain as soon as they will take it. They will begin to nibble at some feed at the end of a week or ten days. While they will not take very much at this time, they will soon become accustomed to eating a small amount of grain, which will aid materially in their growth. The place to feed the grain should be where the ewes cannot get at it. A good plan is to provide a lamb creep in the pen, where the lambs can crawl in without making an effort, but that will not allow the ewes to get in. The trough should be made so that the lambs cannot get into it. It should be from 6 to 8 inches from the ground, with a board over the top so that the lambs can get their heads into the trough. If the trough is left open, the lambs will walk in the feed and waste a great deal. A small allowance of corn meal with a little oil meal in it makes a desirable mixture to begin with. After the lambs are accustomed to taking the grain feed, they should be fed a mixture of five parts corn meal and one of oil meal, or if goood alfalfa or clover hay is available, the oil meal may be eliminated, or fed in smaller amounts. It pays well to force the lambs, especially if they are to be prepared for early summer market. It is a good practice to dispose of all surplus lambs early in the summer, as this will do away with the trouble of feeding them through the late summer, and there is very little danger of internal parasites up to the middle of July or first of August.

Management of Brood Sows

The successful growing of hogs is dependent largely upon the proper management of the brood sows before and after farrowing. The size and condition of their litter at farrowing time also largely determines the value of the pig crop. When the sows are large and strong healthy litters are farrowed and raised and the initial cost of the pig crop is materially reduced. This is determined by taking the cost of maintaining the brood sow since her last litter of pigs.

After breeding the sows they should be kept in a place where they can get plenty of exercise. This is essential, as it keeps the body in good physical condition and the sow is in much better shape for farrowing. Exercise must, in many cases, be forced upon brood sows as they have a tendency to become lazy and will not move about on their own accord. It is often advisable to feed them some distance from their sleeping quarters, so as to get them to take the needed exercise.

The brood sow should be kept gaining slightly in weight from the time she is bred up to farrowing time. If she does not gain in weight she is not receiving food enough to maintain her own body, and certainly cannot develop a strong litter of pigs. The ration fed should have enough protein to insure the proper development of muscle, bone and connective tissue in the litter. On the other hand, if the brood sows are allowed to get too fat the reproductive organs are surrounded by fat, making farrowing difficult and the per cent. of loss high. Sows in such condition are also more apt to lie on their young. On many farms, corn is the principal feed. To this there is no objection if it is properly balanced with some nitrogenous feed, as tankage. A combination of ten parts of corn and one part tankage makes a desirable ration, especially if the sows can have access to a small amount of clover or alfalfa hay. The hay will give a little bulk to the ration and also add some protein.

The feeding of the brood sow at farrowing time should be especially guarded. If a good brood sow is fed a full ration up to farrowing time she will have trouble delivering her litter and there is also danger of milk fever. A few days before farrowing a complete change takes place in the system of the sow. Instead of supplying food directly to the litter, as has been the case during the gestation period, the food nutrients are used to stimulate the flow of milk. There is danger of over-stimulating this if she is kept on full feed, which results in milk fever. Several days before farrowing time the ration should be reduced to half the normal amount. Do not feed the sow at farrowing time, not for 24 or 36 hours afterwards. Give her all the luke-warm water she wants, with possibly a small amount of meal of some kind in it. After two or three

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days, gradually put her back on full feed, as the danger from milk fever or caked udders is practically past. At farrowing time prepare a dry bed of clean straw in some warm and comfortable place. Dirty or musty bedding should be avoided. The dust particles are apt to be inhaled by the little pigs, causing an irritation of the lungs, resulting in coughing or pneumonia. In case the sow is unruly at farrowing time it is better to take the pigs away from her until she has become quieter. During very cold weather the little pigs should be taken to some warm, dry place and kept there until they are well dried. If this is not done the little bodies will be thoroughly chilled and are difficult to get started in life. These minor details may seem considerable work, yet every little pig saved at farrowing time will reduce the initial cost of the pig crop.

Fattening Hogs

Corn should not be used as a sole feed for fattening hogs. Protein in some form as a supplement, will give very profitable returns. Such sources include tankage, skimmilk, buttermilk or linseed meal. Provided buttermilk or skimmilk is not available except at a price exceeding 30 cents per 100 pounds, tankage is probably the most economical protein food.

Although it is extensively used, middlings is not desirable as a feed for fattening hogs. Numerous experiments at the Pennsylvania State College and elsewhere show that gains made with middlings are much more expensive than gains made with other fattening feeds. If tankinge is not available, linseed meal fed at the rate of one part of the meal to seven parts corn will give very satisfactory results.

"Because of the large hay crop and the small demand for it now, roughages should be fed to the limit of the dairy cow's capacity this winter," says Prof. C. C. Hayden, of the Ohio Experiment Station. "Choice alfalfa hay at $20 a ton is cheaper than bran at $30. Our experiments show that soy bean hay is in the same class as alfalfa, and clover is third. With corn at $1 a bushel, clover hay should be worth about $20 a ton, or $5 more than it is now quoted."

Eradication of Tuberculosis

The following activities are being pursued by the Bureau of Animal Industry with reference to bovine tuberculosis, according to a statement recently made by Hon. D. F. Houston, U. S. Secretary of Agriculture:

Applying the tuberculin test to interstate shipments of catle at stock yards when destined to states requiring the test. This is done upon request of the owner and without fee; testing cattle for importation; testing herds in Maryland and Virginia supplying milk to the District of Columbia, in co-operation with the local health officer; testing all cattle in the District of Columbia with a view of eradicating the disease within the District; testing herds in Virginia in co-operation with the Dairy and Food Commissioner of that state; testing pure-bred herds in various parts of the United States in co-operation with the owners; manufacturing and distributing tuberculin to state authorities for official use.

In addition to this work, Secretary Houston believes that the time has arrived when systematic eradication of tuberculosis in selected areas in some of the states should be begun. While this has been suggested from time to time, no state has yet indicated a desire to commence the work. This is possibly due to the lack of funds. To make the requisite progress, the necessary au-

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thority and a considerable sum of money should be available both to the Federal Government and the states.

It is not thought that much permanent headway will be made in securing the co-operation of cattle owners unless some reimbursement is made for cattle destroyed. Under the plan followed in the District of Columbia, cattle which react are first appraised and then slaughtered. If no lesions of tuberculosis are found the owner receives the full appraised value. If lesions are found but the carcasss is not affected to such an extent as to destroy the value of the meat for food purposes, the owner receives 80 per cent. of the appraised value less the salvage. In case the carcass is so badly affected as to require destruction, the owner receives 40 per cent. less the salvage. This has been found generally acceptable to the cattle owners. The cattle are appraised at their beef or dairy value.

Considerable co-operation is received from breeders of pure-bred cattle in eradicating the disease from their herds. So far no compensation has been given for cattle which reacted to the test. Usually these cattle are slaughtered at the owner's expense, but in some instances where the animals are of great value they have been segregated and used for breeding purposes only.

If co-operation with the states is undertaken, it should be on the half-and-half plan and the work should be confined to certain definite sections, such as one or two counties at a time, with extension to other counties as the work progresses.

We are becoming a great export nation, and must compete with other countries in the world's markets, as well as freeing ourselves from this disease for the benefit of our own country.

The agricultural appropriation bill of the present Congress, as reported from the Committee, carries $75,000 for the beginning of this work.

Wormy Horses Do Not Thrive

Many horses lose condition, or fail to make gains during winter months because they are infected with worms. This is especially true of colts. Horses suffering from worms generally have a good appetite, but apparently benefit little from the food eaten.

There may be no symptoms which point conclusively to worms, but this trouble is so common that if the colts and horses are not doing as well as they should for the feed given, a worm remedy may prove of decided value. In treating horses for worms, Dr. L. S. Backus, of the Missouri College of Agriculture, suggests, it is well to keep in mind that the drug is meant for the worm rather than the horse and should therefore be given in as concentrated form as possible. To insure this, little or no bulky food should be fed during the course of treatment, and as the parasites are stupefied by worm remedies rather than killed, the animal's bowels should be kept in an active condition, so that the stupefied worms may be passed out before they regain their vitality. A well salted bran mash once a day will generally insure such an action.

The following formula is a worm remedy which is also of value as a tonic: Powdered nux vomica, 2 ounces; powdered gentian root, 4 ounces; powdered areca nut, 6 ounces; sodium chloride, 4 ounces; arsenious acid, 2 drams; mix. Give one heaping teaspoonful to every 250 pounds weight, every morning and evening for about ten days. The medicine may be mixed with ground feed or sprinkled over oats or corn which has been dampened.

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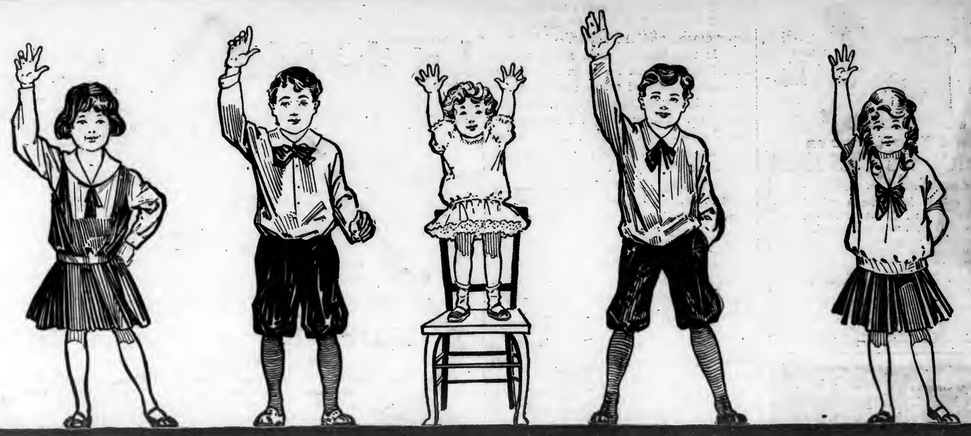

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No matter where you live, no matter how young, every child will stand the same good chance to get a Pony, with Buggy, Harness, Saddle, Bridle and Blanket. Be sure to send in your name right now.

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"One day as I was looking through a paper I saw pictures of ponies that The Pony King was giving away to boys and girls. I wanted to get a pony, but everyone said he would not send a real pony clear out here to Pennsylvania. But when I got a letter saying I had won 'Pert,' I was full of joy. We love him and he loves us, too. He is as gentle as a kitten and the prettiest pony I ever saw. He draws vegetables from the garden, apples from the orchard and potatoes from the field."

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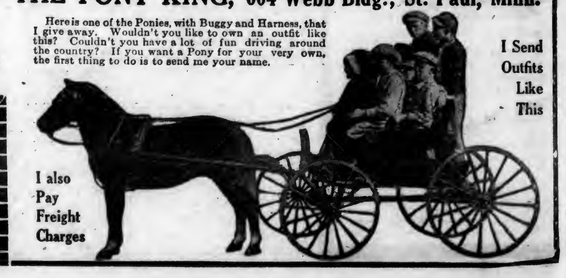
I want to send a **colored Pony Picture Circular free** to every Boy and Girl that sends in his or her name. It gives the names and shows the pictures of the five Ponies I am giving away, out on the farm where they live, with children riding them. It shows one of the ponies hitched to the beautiful Buggy I am going to give away, with six children taking a ride. It shows a picture of The Pony King out on the Pony Farm, talking to 15 children who live near the farm and who come over to ride the Ponies. It shows a picture of Harold Kutzler and "Rob Roy", the Pony I gave him. It shows a picture of Frank McKissak and "Wuzzy", the Pony I gave him. It also tells all about the five beautiful Shetland Ponies I am now going to give away and how to win one. Every boy and girl should get this Pony Picture Circular. I will send it free to every child who sends in his or her name.

Children Be sure to take this chance to get a Pony. Don't wait. Write your name and address in the corner below, cut it out and send it to me. I will then send you the colored Pony Picture Circular Free and you will have an equal chance to get one of the Real Live Ponies I am going to give away soon. You stand just the same chance as any other child and it doesn't cost you a cent. Get your pencil and write your name now.

Parents Please show this Free Offer to your child and send in the coupon. You will be interested in the Pony Circular I send and your child will enjoy it. He or she stands the same good chance as any other child to win one of the five Shetland Ponies I am giving away, no matter where you live. Remember, I am giving five Ponies at one time—not just one—so you see there are five chances to win one. Send in your child's name.

THE PONY KING, 604 Webb Bldg., St. Paul, Minn.

Here is one of the Ponies, with Buggy and Harness, that I give away. Wouldn't you like to own an outfit like this? Couldn't you have a lot of fun driving around the country? If you want a Pony for your very own, the first thing to do is to send me your name.



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WRITE YOUR NAME HERE AND SEND IT TO ME

THE PONY KING, 604 Webb Bldg., St. Paul, Minn.

Please send me the **Free Pony Pictures** and enter my name in your **Pony Club** so I will have the same chance. I want one of the ponies you are giving away.

My name is _____

P. O. _____ Age _____

State _____ R. F. D. _____

State Experiment Sta

The Practical Farmer

PUBLISHED CONTINUOUSLY SINCE 1855

Volume 113 Number 3 — PHILADELPHIA, FEBRUARY 1, 1917 — 50 Cents Per Year 3 Years for $1.00

Silage for Horses, Swine, Sheep and Poultry

"OUR EXPERIENCE POOL," in every issue of this paper, is a sort of farmer's round-table, in which our readers suggest the topics and discuss them. Nearly all our subscribers read this department regularly and many write for it; but *every* subscriber *should* read it, and *more* should enter the discussions than do. To impress the value of "Our Experience Pool" anew upon our readers we are giving it the place of honor in this issue. The first prize winning contribution on the current topic under discussion is printed below—others appear on page 56.

G. H. D., Meetze, Va.—Excellent results have attended the use of cowpea, soy bean and corn ensilage in my work horse ration. I have found it especially desirable in the winter dietary because it is succulent and keeps the animals in healthy condition and also because it is rich enough in feeding value to permit me to materially reduce the amount of grain fed daily without injuring the condition and strength of the horses. Be careful not to feed too much ensilage to a horse, as he has only one stomach, which is able to handle only a small amount of highly acid food such as silage.

I feed from five to seven pounds of ensilage daily per horse, and when 40 per cent. cotton seed meal sold for $35 per ton I used to feed a small handful of meal to each horse daily. By sprinkling the shredded fodder or soy bean and Sudan grass hay which I cut up fine in a cutting box, with a mixture of two parts of water to one part of molasses, I have been able to cut down my grain ration 50 per cent. when the horses were doing hard work, while I fed no grain when the animals were idle, relying on the ensilage and molasses-sweetened hay to keep the animals in the pink of condition. I found that by cutting bright wheat straw up finely and treating it with molasses the horses relish it and keep in good order on this roughage supplemented by ensilage. It also pays to feed the diluted molasses over the ensilage, although this involves more work and tends to keep the feed boxes in a messy condition.

I have always exercised great care not to feed any tainted or moldy ensilage to my horses. My results with feeding corn ensilage have been quite as satisfactory as where I fed the bean-pea-corn silage. As it is much harder and more expensive to make the mixed ensilage, and as there is more tendency for the ensilage to spoil in the mixture, I would recommend the straight corn ensilage as the more profitable in the long run, particularly where it is supplemented by the use of clover, alfalfa, soy bean or cowpea hay.

My experience has been that ensilage is not a good roughage for hogse, due to its highly acid character and because the swine waste so much of the feed in scratching out the grains of corn. I used to throw slightly damaged ensilage into the hog lot where the porkers could nose over it, but I would not recommend this as a safe practice.

About two pounds of sweet corn ensilage or

(Concluded on page 56)

The Silo is the feed storehouse par excellence; here its filling is being accomplished by "the farm locomotive"—the tractor. A host of uses has the tractor!

No Money In Advance

Hartman's Special Farm Credit Plan

It is our firm conviction that every distributor of merchandise should be willing to stand squarely behind the goods he sells. That is why we will send you everything you want in the way of Furniture, Carpets, Rugs, Draperies, Household Goods, Paint, Roofing, Engines, Separators or other farm merchandise, without a cent advance payment, without C. O. D. payment—no security—no deposit—without any obligation on your part whatever. Make your selection from these pages or from our big general catalog or special catalogs which we will send you free. If what you order isn't satisfactory—or if for any reason at all you do not wish to keep what you order—send the goods back at our expense.

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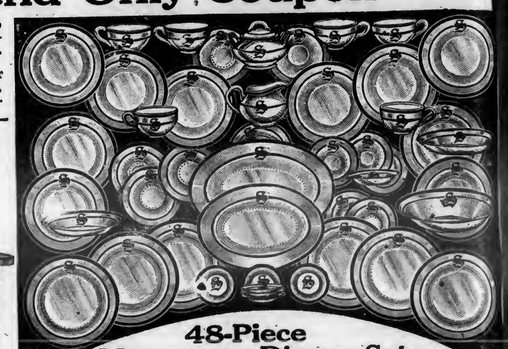
Wonderful value in correctly designed William and Mary Period 3-Piece Library Set—substantially built throughout of solid oak, properly finished Fumed. Table made with large 26x38 inch top, trimmed with 3-panel end, offset by period carvings. Has shapely rim, convenient book shelf. Legs cut from 2-inch stock, fitted with nickel slides. Rocker and arm chair are extra roomy, splendidly constructed and unusually comfortable. Panel back and seats are upholstered in durable imitation Spanish leather, over wood fibre and jute. Dainty carvings will be found on panels in back and front posts, as well as deep embossed carvings on top rail and seat rail. Six springs resting on steel channel bars support seat. Chair and rocker made with genuine quarter-sawed oak arms. Let us ship you this wonderful bargain on approval. If you do not wish to keep it, return at our expense and you will not be out a cent. Order by No. MA259. Special Bargain Price $16.95. Terms: No Money in Advance. $1.70 in 30 days. Balance in nine equal monthly payments; or $2.85 in 60 days. Balance in five equal sixty-day payments.



48-Piece Monogram Dinner Set

Just mail coupon and we will at once ship you the complete set with your monogram initial in gold on every piece. Be sure to state initial wanted.

If you think this the biggest dinner set bargain you ever heard of and wish to keep it, just pay 50c in 30 days after dishes arrive and then 50c a month until our special get-acquainted bargain price of $3.95 is paid, or, if you prefer, you may pay 65c in 60 days and balance in 5 equal payments every two months. If you do not wish to keep them, return at our freight expense and you will not be out a cent. Here is your opportunity to gratify your wish to set your table with as exquisite a set of dishes as the heart of any woman could desire. They are of splendid quality pure white Porcelain decorated with gold bands and your own initial in gold on every piece. Complete set consists of 6 dinner plates; 6 breakfast plates; 6 cups; 6 saucers; 6 fruit dishes; 6 new style soup coupes; 6 butter plates; 1 deep open vegetable dish; 2 meat platters; 1 sugar bowl and cover (two pieces); 1 cream pitcher. Each dish is full size for family use. Order by No. MA271. Price $3.95. Terms: No Money in Advance. 50c in 30 days. Balance 50c per month or 65c in 60 days, balance in 5 equal 60-day payments.

Be sure to state the initial you want on your set.

Exact Size and Style of Initial on Every Piece

A Full Year To Pay

Oil Stove Bargain

A wonderful stove that does away with all wood, coal, ashes, smoke and dirt. Keeps kitchen cool, clean, absolutely safe. Has removable glass oil tank—can be filled outside if desired. Easily cleaned. Simple to use and regulate as an ordinary lamp. Does all kind of cooking, baking etc. Most economical—utilizing hundreds of bushels of air while consuming one gallon of oil. Olive enamel finish body and shelf. Top japanned. Burners alloy. Nickel trimming. Oven has glass door drop—asbestos lined.

Order by No. MA270.

Prices as follows:

$6.50 for the one burner without shelf.			
9.75	two	" "	"
13.85	"	with	"
14.00	" three	" without	"
18.50	"	with	"
17.50	" four	" without	"
22.75	"	" with	"
24.50	" five	" without	"
32.25	"	" with	"

Single oven, $3.00 extra. Double oven, $3.85 extra.

Terms: No money in advance. One-tenth in 30 days, balance in nine equal monthly payments; or one-sixth in 60 days and balance in five equal payments every two months.

Sensational Sale of Rockers

Seat Supported by Six Steel Springs

Send coupon for this big, roomy Rocker and let it prove for itself what a wonderful bargain it really is. An unusually attractive, sturdily built rocker, made with artistic solid oak frame, neatly finished glossy golden. Has embossed front post measuring full 3¾ inches in width; shapely arms measuring 23 inches long by 3¾ in. wide. Back is divided into two sections, the upper section trimmed with straps and large buttons. Seat measures full 19¼ inches in width by 18 inches deep, and is supported by 6 heavy steel coil springs fully covered with wood fibre and jute. Upholstering is of durable imitation Spanish brown leather. Order by No. MA268. Price only $4.85. Terms: No Money in Advance; 50c in 30 days; balance in 3 equal monthly payments; or 85c in 60 days; balance in 6 equal payments at intervals of 2 months.

Remarkable Bargains In Paint and Roofing

Order all the paint and roofing you need without sending a cent in advance. We'll send it to you on 30 days' approval, and not until you are positively convinced that it is of fine quality and a great value at our special bargain prices, do we even expect you to keep it. If you decide to keep it you may make a first small payment in 30 or 60 days after it arrives and pay the balance in 30 or 60 day payments thereafter, giving you a full year to pay without interest.

Paint and Roofing Book FREE

Send name and address on postal or coupon for Free catalog containing all paint colors. Also free samples of roofing prepaid and full details of our Special Farm Credit Plan. Don't buy paint or roofing until you get this big FREE book.

Mail This Coupon

The Hartman Co., 4096 La Salle St., Dept. 256, Chicago

Put line like this ▬ in front of bargains wanted.

No. MA268, Rocker No. MA259, Library Set

No. MA271, 48-Piece Dinner Set, Initial.....

No. MA270.....Burner Stove with Shelf

No. MA270.....Burner Stove without Shelf

Single Oven..... Double Oven.....

Please send me goods checked above, if I keep the goods, I will make first payment either in 30 or 60 days after arrival and pay balance in 30 or 60 day payments as per prices and terms quoted in this advertisement.

Name.....

Address.....

If catalogs only are wanted write name and address above and mark ☐ below

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A TWICE-A-MONTH JOURNAL of practical, every-day experience for, and by, men and women who take their living from the soil.

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The Why and How of Alfalfa in the East

By F. R. STEVENS
Agriculturist Lehigh Valley Railroad

IT is too late to talk about the feeding value of alfalfa hay. From the early days of agriculture it has been considered the most valuable protein food grown. The recent tests have confirmed the early opinion of this food and have strengthened rather than detracted from the general opinion held by the feeders in centuries past.

It has always been valued highly as a food for cows, hogs, chickens and sheep, and in sections where it has been used judiciously it has always been valued as a food for horses. Some setbacks in its value in this respect have occurred because of injudicious feeding, but during the past five years some very careful experiments have proved its value.

The Lehigh Valley Coal Company in a careful test in 1912 compared the feeding value of alfalfa with timothy and mixed hays as a ration for mules in their mines and found that by this they could use a half less grain, keep the mules in a better condition and effect a total saving of 25 per cent. in feeding cost.

During the year 1915 the Illinois State Experiment Station ran a similar test on horses; in this case several teams were used, in which one horse was fed alfalfa and the other timothy. By cutting down the grain allowance on the alfalfa fed horses it was found that they were kept in fully as good condition with the saving of about 23 per cent. in the total cost.

Another added value of the growing of alfalfa is the fact that it increases the productivity of the soil rather than decrease it as does timothy, thus doing away with the old objection the farmers have of selling hay. This seems to be based on sound agricultural practice, as the roots of the alfalfa plants penetrating deeply into the soil not only reach plant food absolutely inaccessible to any other plant, but the roots decaying at great depth leave plant food where no other known power can put it. In addition to this the roots break up heavy soils, leaving drainage holes. They fill sandy soils with water-holding material and in both case coax the roots of succeeding crops deep into the soil where they are not easily disturbed.

With these facts as above it would seem at first sight that farmers many years ago would all have grown alfalfa instead of other types of grasses. In fact, some of the leading agricultural thinkers of over a century ago urged the increase in planting throughout the East. The reason that it was not more generally grown is the fact that we did not at that time know how to grow it outside of a certain range of soils naturally adapted to it. These consist of the deep glacial drift limestone soils through central New York, and the alluvial bottom lands of the Middle West, where the alkalies destroyed the soil acid, producing another type of soil favorable to the growth of this deep-rooted plant.

It is only within the past ten years that any considerable amount of work has been done toward adapting the various types of alfalfa to soils other than those discussed above and in bringing about conditions to enlarge the area of alfalfa growing soils. First it was found that with sufficient limestone, inoculation and phosphorus, that any deep soil could be made to grow the ordinary alfalfa, which term usually means any hard alfalfa with a straight, long tap root. The second step was in discovering the varieties of alfalfa which had spreading roots and were therefore adapted to the wet hard-pan soils through which the tap root of the ordinary variety could not penetrate.

With the aid of both of these steps the area on which alfalfa may be grown has increased from a very small percentage to probably 80 per cent. of our tillable lands. The present status of the crop is that success depends upon, first, adaptation of the variety, and, second, upon limestone, phosphorus and inoculation. During the past season farmers in western New York harvested an unusual crop of alfalfa hay. I know of several that had from 100 to 200 tons for sale. The first cutting was, in most cases, colored somewhat from the rain; the second cutting was harvested in a pea-green condition, and all were comparatively free from weeds and of excellent quality. There is no chance of overdoing the production of alfalfa in the East. Even now alfalfa is being shipped into New York City and the cities adjacent to it, from Colorado and California.

Inspection Party Viewing Part of 75 Acres of Alfalfa on Long Look Farm of Minch Bros., Cumberland Co., New Jersey
A Five-year Rotation is Practiced—15 Acres are Turned Under Each Year and 15 Acres Seeded

Typical Grimm Alfalfa Plant Showing Spreading Root System

It is true that Western shippers have sometimes a slight advantage over the Eastern shippers in the color of their product. Alfalfa colors very easily in a slight rain, or even to some little extent with repeated heavy dews, but the quality is in no wise hurt by this slight coloring, and it is not severely discounted on this account by consumers who know alfalfa hay.

The feeding value of this hay is becoming pretty generally known and is being rapidly substituted for other hay by dairymen, and also truckmen, express companies, mines and others who are using a large number of horses and mules. For cows it has become the standard roughage and is always recommended for cows under test. In addition to this, the business of grinding Eastern grown alfalfa is developing. Within the past year there has been located in western New York one of the first alfalfa grinding mills using this product in the East. The demand for ground alfalfa is increasing rapidly, especially since wheat bran has gone so high, and it is found that alfalfa may be substituted for wheat bran. This is not only true in the matter of its use for lightening heavier feeds and its protein content, but also because it contains the ash content in the form of lime. In fact, all the qualities which have made wheat bran such a popular feed in the past.

Its use in the feeding of poultry has increased, following the high prices of meat scrap, for which it can be substituted at least in part.

On farms where the soil is not of a natural alfalfa variety it is usually considered good practice to first fit a small area of sufficient size to take care of the needs of home feeding and leave it as a permanent crop. On farms where finances will warrant it and where there is a natural alfalfa soil it seems good practice to put the alfalfa in rotation with other crops, leaving it down from four to six years.

Alfalfa is a clover which does not yield itself to a short rotation. In case a rotation is such that a field can be left in seed only one or two years, Red clover will give a better yield, as a rule, and leave the ground in better condition than will alfalfa in that length of time, but where left longer than two years, alfalfa is far superior to the clover. Undoubtedly the next ten years will give much added information in matters of the varieties and adaptation of this wonderful crop, but enough has been done in this respect so that 99 per cent. of our farmers can use alfalfa to an advantage as a practical crop without experiment.

In the East alfalfa may be seeded from May 15th to June 15th. Common alfalfa may be seeded in August, but the Grimm should be seeded always in the spring, thus giving it an opportunity to develop its lateral roots before the first winter. Nurse crops may be used, provided they are cut green and not allowed to mature on the ground. Alfalfa may be seeded with peas, grown for the canning factory, with a bushel of barley or oats, provided the latter are cut for hay.

Alfalfa responds readily to the mineral fertilizers, especially to phosphorus. Our most successful growers have the practice of using 500 pounds of acid phosphate at the time of seeding and top dressing with 200 pounds per acre every second year. One of the greatest enemies of alfalfa is weeds. For this reason never use manure as a top dressing. At least once every year harrow with a spring-tooth harrow with the diamond points, or with one which has had the teeth sharpened especially to be used simply as an alfalfa harrow. In cases of well drained soil, this harrowing may take place before the alfalfa starts in the spring. Wherever the horses will damage the ground before the alfalfa starts, let the harrowing take place after the first cuting. If the seeding has been broadcast, harrow both ways; under no condition use a disk harrow on alfalfa in our Eastern climate.

TIGHT BINDING TEXT CUT OFF

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EDITORS

THOS. H. WITTKORN W. F. MASSEY W. H. TOMHAVE
A. E. GRANTHAM CHARLES A. McCUE
F. V. L. TURNER J. H. REED
EDWARD T. WALKER, Managing Editor

SPECIAL REPRESENTATIVES

J. C. Billingslea, 119-123 W. Madison St., Chicago.
708 Kresge Bldg., Detroit, Mich.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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The date on the address label shows the time to which your subscription is paid; Jan. 18 means that your subscription is paid to January, 1918. Renew at least one month before the expiration of your subscription to avoid missing any copies. It takes a month to change date on label, or to put a new name on our mailing list after we receive the subscription.

FEBRUARY 1, 1917

Our Live Stock and Dairy Number

MOST of our readers will be interested in the announcement that the March 15th issue will be our Annual Live Stock and Dairy Number.

As usual, we offer special cash prizes for contributed articles on any branch of the live stock and dairy industries as especially related to the general farm; these prizes are four in number and will be awarded for the articles our editors select as the most interesting and helpful. All four of the articles will be published in the March 15th issue. The prizes are as follows:

First prize	$15.00
Second prize	10.00
Third prize	8.00
Fourth prize	5.00

All contributions entered in competition for these prizes must be in our hands by February 21st—and we would like to receive your articles as much ahead of this date as possible. There is no restriction as to length—but we would suggest that an article may lose in interest by being too long "drawn out," and, on the other hand, may be of small value because of incompleteness; accordingly, the best plan is to tell your whole story in as interesting a manner as possible, but beware of "rambling." Give us the benefit of your experience in the raising of horses, mules, sheep or swine, in the feeding of cattle or in dairying—or any of the subjects related thereto; the experience from which you have learned the most will be the most interesting and valuable to others.

Those of you who give some attention to gardening or devote your time to truck growing should remember that in the March 1st issue special emphasis will be laid on those departments of farming and that cash prizes are offered for the best articles thereon (see announcement on page 27 of our January 15th issue). Entries for those prizes must be in our hands by February 8th.

To Stop "Legalized Murder"

WE learn with satisfaction that at the present session of the Pennsylvania State Legislature Representative Wells will introduce a bill to abolish capital punishment. In support of this bill a strong sentiment has been set in motion in all parts of the state and it is our earnest hope that it may be passed and become a law.

It is high time that this entire nation foreswore the ancient law of "an eye for an eye and a tooth for a tooth" as exemplified in its exaction of a murder for a murder. The argument that the fear of the death penalty tends to lessen the number of murders has been disproved by the records of the states in which capital punishment has been done away with—in Michigan, Rhode Island, Wisconsin and Maine homicide has decreased, and their records show favorably in comparison with those of the states which still "kill for killing."

As a matter of fact, we believe, with life imprisonment substituted for electrocution more just convictions for first degree murder will be secured than under present conditions, for the record of disagreements and astonishing acquittals which our courts produce evidence the reluctance of juries to convict where conviction carries with it the death penalty.

Our courts are not infallible in their judgments, as is evidenced by the discoveries from time to time that innocent men have been, and are being, punished for lesser crimes than first degree murder; in such cases some reparation is possible, but if the state has taken it's victim's life—what then? The majority of men sentenced to death go to the chair protesting their innocence; how many *are* innocent?

If you live in Pennsylvania and want to see capital punishment abolished wouldn't it be a good idea for you to write your representatives in both Houses and tell them so?

National Conservation

RECENTLY it has been said that we Americans are a nation of liars, as proven by our national hymn. "I love thy rocks and rills, thy woods and templed hills," we all like to sing, but then we turn around and mine out the hills, give away the water powers and chop down the forests. Three bills now pending in Congress show how much we suit our singing to action. The Shields water power bill makes a present of the public water powers on our navigable streams to the water power interests. The Myers bill does for water powers on public lands what the Shields bill does on navigable streams. This is bad enough, but under the terms of the Phelan bill it is proposed to dispose of vast areas of public oil lands with no regard for the public. Notwithstanding that the supreme court recently declared that the claimants for these lands had no legal rights whatever to them, the sponsors for the bill would give away the fuel oil reserves of the navy. Sacrificing the efficiency of the navy, our first and most important line of national defence, to the profits of a few who want what they have no right to get, seems to call forth little protest. These bills are backed by powerful water power and oil interests and have made such progress that they will become laws unless something is done to stop them. If you really mean what you sing at the Fourth of July celebrations write to your Senators and Representatives at Washington and tell them what you think of conditions.

Again the Story of the "Rich Farmer"

THE annual report from Washington giving the estimated gross value of the year's farm production has recently been issued and given the city papers their annual opportunity of showing how big and prosperous the farmer is supposed to be. The total value of crops and animal products is stated to be $13,449,000,000, an increase of $2,674,000,000 over the total of 1915, which was itself a high water mark. Here the city papers stop and begin to show by cartoon and story the farmer rolling in wealth. They overlook the fact that the gross value reported takes no account of the use of a product as a material for other production, nor are any costs of production subtracted. Neither do they say anything about dividing this amount among some seven million farmers who are represented in the totals. The value of the net product of wealth on farms has never been determined and cannot now be estimated. Gross values only are expressed so that they can be compared with census figures which are gathered on the same plan.

During 1916 four crops have each exceeded a billion dollars in value at the farm. The estimate for corn is $2,296,000,000; cotton crop, including lint and seed, $1,406,000,000; hay, tame and wild, $1,162,000,000; and wheat, $1,026,000,000. Other crops that each exceed a hundred million dollars are oats, $656,000,000; potatoes, $417,000,000; farm wood-lot products, $221,000,000; apples, $186,000,000; tobacco, $169,000,000; and barley, $160,000,000.

The past year was undoubtedly a record-breaker as to prices received for farm products. The level of prices on December 1st was nearly 56 per cent. higher than that of a year ago. The pity is that only part of the producers were able to receive its benefits. Perhaps half were only able to harvest from average crops down to nothing, due to weather and labor conditions beyond their control. In balancing accounts these men must be taken into consideration, so that totals for 1915 were not as big as last year, more farmers enjoyed the benefits of good crops and remunerative prices.

The Milk Commission's Report

AFTER considering the problem for three months the joint milk commission, appointed by the Governors of Pennsylvania, Maryland and Delaware have issued their report, which takes up about eight typewritten pages, including charts. They were supposed to view the matter from all sides and have accordingly made recommendations on all sides. They believe that milk distribution should be regarded as a public utility and that the average of all figures submitted to them showing a production cost of [illegible] cents per quart could be materially reduced. This can be accomplished, they believe, by "taking definite and drastic steps to eliminate 'boarders';" by increasing the yield per cow, per herd and per district; by co-operation among the dairy farmers in cow-testing and bull associations; through co-operative action with governmental authorities in maintaining sanitary standards for milk production, thus eliminating a waste; through scientific feeding and through more extended use of county farm agents.

Considering milk distribution as a public utility the commission would have dealers' accounts kept in a form to be prescribed by the state, open at all times for proper inspection, and an annual report made to the state. They not only favor licensing dealers, this is done now, but also testers in state receiving stations. It is recommended that the price of milk be standard under substantially the same conditions and circumstances.

The whole report seems to have been prepared to meet the approval of the consumers. The general proposition is that the price of milk can be lowered by applying different methods to all processes through which it passes. This, in the commission's opinion, is the only way in which the industry can be developed and stabilized. They point to the fact that when milk remained for fourteen years at eight cents a quart consumption per capita increased, but when it was raised last fall to nine cents a quart consumption was materially decreased.

The whole plan of the report is only one step nearer paternalism than is now practiced under the pure food laws and the handling of drugs, poisons and patent medicines. Whether the consumers are ready to accept it or not remains to be seen. Their approval or disapproval of the principles involved will have to be shown through legislative enactment. The opinion of the producers rests with the individual. Each will have to decide for himself what the future of the milk business holds forth. There is one consolation, however, and that is, whenever the business is found unprofitable other livestock opportunities are open which offer attractive possibilities to the progressive farmer.

Save Your Junk—It's Valuable

ONE of our contributors to the Women's Exchange of this issue gives an account of how she made money by disposing of waste materials. Never before has junk been worth as much money as it is now. Railroads, large manufacturers and contractors have of recent years given special attention to the saving and sale of junk and have received large sums of money which formerly dribbled away for lack of care. They are always on the lookout for improved machinery and count on the scrap value of the old to partly pay for the new. This idea has not been practiced much in the country, but now is an excellent time to introduce it. Considering the fact that a ton of old iron can be sold now for about as much as a ton of straw (and it will not remove anywhere near as much fertility) wouldn't it pay to dispose of some of the old machinery and get new for the small additional cost?

Old rubber, paper, rags and bags now have a value which makes it worth while to save and sell them. When the weather and roads become favorable, dealers will scour the country for such things. Never since the Civil War has paper been as high as it is now, and waste materials which enter into it have correspondingly advanced. In many cities and towns organized efforts are being made to collect this material for the benefit of schools, clubs, churches and other organizations. On the farm, where in many cases it has been accumulating for many years, an opportunity is presented this year for some extra and "easy" money.

THE GARDEN

Edited by W. F. MASSEY

All articles for, or questions relating to this department should be addressed "The Garden," The Practical Farmer, Philadelphia, Pa.

Early Irish Potatoes

Here, we can usually get the early potatoes in the ground before the end of February, but often not before March. But it is always best to get the seed potatoes on hand before planting time. This season they are going to be very high in price. The Irish Cobbler is most generally used now by the market growers, and in New Jersey they are growing a long potato they call Giants. I am not familiar with this potato and do not know whether it is an early or late sort. For home use there is no better potato than the old Early Ohio. A similar potato to the Irish Cobbler is now sold under the name of Beauty and is claimed to be much better than the Cobbler, which has of late gotten badly mixed.

In my garden, which is covered with manure in the fall, I use with the potatoes a good supply of acid phosphate in the furrows. When potash was available I used a good percentage of it, but really have found that I did not need it so much as was thought, for since we have not been able to get potash my potato crops have been just as good as before. In fact, where potash has been used liberally in the past there is doubtless some accumulation in the soil, for potash never leaches from the soil, but stays until taken up by plants, while nitrogen will leach out rapidly.

Growing Early Tomato Plants

The important thing in February is getting the early tomato crop started. As a rule, I find that the best time to sow seed of early tomatoes in any section of the country is about ten weeks before it is safe to set them in the open ground. Here, this means sowing the first week in February, later, of course, northward. Seed can be sown in flats in a greenhouse, or sown in a hotbed under glass sashes, or in the absence of these, for the home garden they can be sown in a shallow box or pan in a sunny window of the dwelling where the room is constantly warm.

Frequent transplanting of the young plants before setting out is important for getting good stout plants at the proper time. I sow the seed in a flat or shallow box, usually made by sawing a soap box, or other similar box, in half. The soil in the box is the same compost of old manure and rotted sods that I use for all greenhouse purposes. If this is not from light soil it should be lightened with some fine leaf mold and sand.

The soil in the box is made perfectly level and the seed sown rather thinly and covered with sifted leaf mold. As soon as the plants are well up, and even before they have taken the rough leaf, I transplant them to other boxes, giving them a little more room and setting them deeper. In these boxes they are allowed to grow strongly until March and then, in this section, they can be transplanted into cold frames 4 inches apart. After placing them in the frame they are kept as hardy as practicable by giving plenty of air in sunny weather, but covering the frames at night during cold snaps with mats. Gradually they are hardened to the outer air by stripping the sashes off entirely in warm days. My object is to get them so toughened that the stems take on a purplish color rather than a tender green. To still further toughen them, for a week or more before the final transplanting I let the soil in the frame get rather dry. Then when taking them up for transplanting I soak the soil well the day before and take the plants up with a garden trowel and a mass of soil, setting them in boxes to go to the garden. There they are set in holes filled with water and the soil immediately pulled around them, and I seldom have a plant to wilt.

The early tomatoes are set in rows 3 feet apart and 2 feet apart in the rows. A stake 6 feet tall is set firmly by each plant and they are trained to a single stem and tied up to the stakes as they grow, and all the side suckers kept pinched out every few days. The plants are stopped when they reach the top of the stakes. Some of the same compost that is used in starting the plants is placed thickly around each plant after being well mixed with raw bone meal.

The earliest tomato is the Earliana, and of this I plant but few, as it is a short crop variety, throwing its whole crop early and quitting. It is valuable for the market grower on this account, but for the family garden we want a tomato that will continue fruiting longer, and a better tomato, too. I have found that Bonny Best is the best early tomato for home use. It is very little later than the Earliana and a far better tomato. John Baer is a good tomato that comes in a week or ten days later than the Bonny Best. Of the late sorts I will have something to say later.

Portable Cold Frames

I find the portable frames with three sashes each far better for use in the home garden than a long fixed frame. I use a number of sashes, but no frames larger than a three-sash frame. These are made with angle iron corners and can be unscrewed and stored in summer. The advantage is that one can follow the same crop by moving the frame to fresh soil, or can use the frames for tomato plants in spring after hardening off the beets and other hardy things. I can plant a frame in Roman hyacinths and narcissus and get a lot of flowers and remove the frame in the spring and let the bulbs mature so that they are not lost as in greenhouse forcing. I can plant a frame of violets in the fall and get the bloom and in spring can remove the frame and use it for setting out geraniums in the 4-inch pots to get them ready for planting, and save room in the little greenhouse. In fact, there are so many uses for the portable frames that I must defer a complete account of them to the next issue.

Where there is plenty of frame room under glass you can now sow beets and radishes in a heavily manured frame. I sow them in alternate rows 6 inches apart. If the single glazed sashes are used it will be necessary to use mats on cold nights to keep out frost. But both these plants are rather hardy and even if a little frost gets in there will not be much harm done. The radishes will come out before the beets need all the room, and as I use small portable frames I can remove the frame from the beets the middle of March and use it elsewhere for my tomato plants. The beets are then thinned and the thinnings transplanted, and in this way I get beets by the time people are usually getting them germinated in the open ground.

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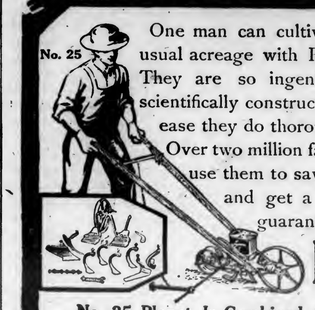

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HORTICULTURE

Edited by C. A. McCUE

The Peninsular Horticultural Society

The Peninsular Horticultural Society held its thirtieth annual meeting in Dover, Del., on the 9, 10 and 11 of January.

The meetings were well attended and an excellent program was presented. The growers showed an unusual amount of interest in several phases of orcharding. This was particularly true of the pear blight situation and its probable effect upon apple growing on the peninsula. Another problem not down on the program, that caused quite a free discussion, was the large percentage of side injury last year. It developed that the trouble was caused by the codling moth and that so far spraying had failed to control the trouble. Most of the growers seemed to think that more thorough spraying for the first brood of the codling moth would help control the trouble.

Mr. J. S. Soper, in his presidential address, urged better methods of marketing and more adequate transportation facilities for the apple crop.

In a very able paper Mr. A. W. Slaymaker reviewed the apple industry of the peninsula for the past year and advocated the planting of better varieties and emphasized his belief that the apple business of the peninsula was on a firm foundation and the business sound.

Two papers that caused the growers to think were given by Dr. J. P. Stewart, of State College, Pa. Dr. Stewart reviewed the work done in Pennsylvania, along lines of fertilizing the apple orchard. Among the large number of orchards tested only one showed marked benefit from applications of potash, while practically all experimental orchards showed conclusively that nitrogen was of prime importance in apple growing. A combination of nitrogen and phosphoric acid seemed to give uniformly the best results. It was pointed out that humus was a prime requisite for apple soils and the speaker opened up a new line of thought when he advocated the use of lime and phosphoric acid in orchards for the great benefit that was derived from them by the cover crop, or mulching crop, thus indirectly benefiting the trees by adding to the vegetable matter in the soil. In a talk on cultural methods in apple orchards Dr. Stewart showed that under Pennsylvania conditions the mulch system of handling orchards had in many instances given better results than the cover crop system. This practice did not agree with that commonly used on the peninsula, where cover cropping is extensively practiced. However, Dr. Stewart pointed out that under the soil conditions with which he was working the cover crop did not decay quickly enough in the summer to be of much benefit to the trees. Under the soil and climatic conditions that prevail in Delaware and on the eastern shore of Maryland, the soil is lighter and undoubtedly the cover crop decays much more quickly. One point brought out that caused much comment was that in Pennsylvania one of the best methods of growing a young orchard had been to grow alfalfa continuously in the orchard, cutting the alfalfa about three times a year and letting it lie on the ground for mulching material. Most of those present believed that the plan would not work on the light sandy loams of the Atlantic coastal plain. The worst drawback to the mulching system for young trees, Dr. Stewart explained, was damage from mice.

Mr. J. W. Killen, who has a great deal of experience in nut culture, presented a most interesting review of his work with nuts. Mr. Killen believes that as far as the American and European chestnuts are concerned, that the chestnut industry of the Eastern United States is doomed, on account of chestnut blight. However, he believes that there is a great future for the industry if Japanese chestnuts are used, as he has found that although not entirely immune to blight, the Japanese chestnuts do not easily succumb to the disease. Mr. Killen has done a great deal of work in crossing walnuts, and predicted a great future for the Persian walnut and some of the Japanese types. He thinks that many of the defects of the Japanese types can be overcome by crossing them with the Persian walnut. Mr. Killen is by instinct a plant experimenter, and his work with the nut trees should be more widely known. He has been called the Luther Burbank of Delaware (which may or may not be a compliment, depending on how you take it).

Prof. E. N. Cory, of Maryland, led the round table talk on spraying, and a lively discussion of this important phase of fruit growing followed. The peach growers were particularly interested in the use of the Starcher formula for making a lime-sulphur mixture for spraying peaches in foliage. It seemed to be felt that as yet we do not have a real good summer spray for peaches, and that there is lots of room for improvement over the self-boiled lime-sulphur, so commonly used.

A thorough discussion was held upon the Maryland and Delaware apple grading laws and it seemed to practically all those present that neither of the laws were perfect. The Maryland law provides for an orchard run grade and many thought there should be no such grade. Prof. Shaw, of Maryland, explained the Maryland law. Mr. H. C. Hetzel, of the Bureau of Markets, presented a sample apple grading law which he believed would do away with the most of the objections raised to the grading laws now in force in the various states. Mr. Hetzel's suggestions differed radically from all existing laws in that he proposed a marked lowering of the "B" grade. In all probability the Delaware law will either be repealed or amended this year, and in a proposed new law doubtless some of Mr. Hetzel's suggestions will be incorporated.

Mr. H. P. Gould, of the Department of Agriculture, presented an able paper upon soil, moisture and humus conditions in apple growing. Unfortunately time was so pressing when this paper was read that there was no time for discussion.

Two of the most interesting talks given in the entire meeting were by Director T. C. Johnson, of the Virginia Truck Station. Prof. Johnson gave the best discussion of the fertilizer requirements for white potatoes that a Delaware audience ever listened to. After discussing the various fertilizer experiments conducted at Norfolk and Tasley, Va., with potatoes, he advocated a fertilizer that analyzed about 3 per cent. nitrogen, 8 per cent. phosphoric acid and 5 per cent. potash. In view of the fact that potash was virtually unobtainable at the present time he advocated increasing the phosphoric acid to 10 per cent. This will increase the amount of insoluble potash liberated and made available for plant use, by the action of the gypsum in the acid phosphate. In fertilizing for potatoes one should also govern the source of nitrogen by what time the potatoes are to be harvested; for example, when an extremely early harvest is contemplated more of the nitrogen should be derived from nitrate of soda than when a late harvest is planned. In the Norfolk experiments the use of Crimson clover grown as a cover crop and turned under, plus commercial fertilizer, gave almost identical results with barnyard manure plus commercial fertilizers. Prof. Johnson also emphasized the great importance in growing potatoes of keeping up the humus content of the soil.

Drs. Manns and Norton reviewed the various plant disease troubles of the past year. Dr. Norton spoke at length on the damage that the tomato wilt had done on the eastern shore of Maryland. The importance of spraying, use of pure seed and growing wilt-resistant strains of tomatoes was further emphasized by Prof. C. E. Temple in an illustrated lecture on "Factors Causing Failures in Tomato Crop." On the evening of the 9th Mr. Richard Vincent gave a most interesting and instructive illustrated lecture upon the dahlia.

The exhibits were well staged and were of considerable extent. The quality of the apples shown was hardly up to last year's standard. The vegetable exhibit is steadily growing, and more and more interest is being taken in it. F. M. Soper & Sons, of Magnolia, Del., and Mr. Walter Harris, of Wortons, Md., walked away with the bulk of the apple prizes.

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Soils and Field Crops

Conducted by A. E. GRANTHAM

In this department will be answered questions relating to soils and their improvement, field crops and the use of lime. Questions should be addressed to the "Soils and Field Crops" department, care of The Practical Farmer, Philadelphia, Pa.

Fertilizers for the Spring Crops

At no time in the past has the problem of fertilizers given the farmer so much concern as at present. With potash unobtainable and the prices of phosphoric acid and nitrogen considerably advanced the prospect of profits from the use of fertilizers may seem rather obscure. It should be remembered, however, that the prices of farm products have likewise advanced during the past three years, so that there is not so much difference between the cost of application and the value of the returns per acre. For example, if one-sixth of a ton of fertilizer costing $24 was applied per acre three years ago when corn was 80 cents per bushel and the yield was 60 bushels, the cost of the fertilizer per acre was $4 and the value of the grain $48. If the same fertilizer now costs $36 per ton and the corn sells for $1 per bushel the fertilizer costs $6 and the crop is worth $60, a difference in the value of the product for the two periods of $10. Of course, labor has advanced in price and the quality of the fertilizer is not the same, on account of the lack of potash. On the ordinary farm manure is a most valuable fertilizer at this time. If the manure has been well preserved, including the liquid portion, considerable potash is available for the crop. If manure can be supplemented by the use of acid phosphate and applied on sod land good results should be secured for corn. It will be a good plan where a strong grass or clover sod is to be turned to use only a moderate quantity of manure, about 6 tons per acre. This will allow the supply of manure to go farther. If the land has not been limed for a number of years it will be well to apply at least one ton per acre on clay soils and one-half ton on sandy soil. Experiments have shown that lime alone will increase the yield of corn on sod land from 6 to 8 bushels per acre. Then, lime will liberate a small quantity of potash in certain types of soil, particularly clay loams. As most of our soils are deficient in phosphoric acid, the usual quantity, if not more, should be applied. The careful use of stable manure, when available, together with an application of lime on sod land and supplemented by a moderate amount of acid phosphate will bring returns. Where no sod or manure is available it will be necessary to include 2 to 3 per cent. of nitrogen in the mixture for corn. A 3-8 or 3-10 should give fairly good results.

The Spring Seeding of Clover

The crop that demands the earliest attention in the spring is clover. Since spring seeding is the general practice it may be well to consider the details. Concerning no crop is there such a diversity of opinion as to the best time to seed or the best manner of doing it. Too little attention is given to the culture of this very important crop. The farmer is now paying about 20 cents a pound for good clover seed and with the increasing difficulty of securing a stand the cost of growing the crop has advanced rapidly. Some indication of the difficulties attending the growing of Red clover in the Eastern States is shown by the fact that the acreage decreased 40 per cent. from 1900 to 1910. Many are the causes attributed to the failure of clover. Some of the real causes are probably due to slipshod methods of seeding. As is well known, the greater proportion of clover is seeded with a nurse crop, as wheat or oats. The time of seeding may range from February to the middle of April. The best time to sow is at that period when the frost is just leaving the ground. The soil at that time is honey-combed and cracked from the alternate freezing and thawing, so that the seed is easily covered when the ground settles. Good success is often had by sowing the seed broadcast upon the snow or frozen ground. If the seeding is done later in the spring, after the land is firm enough to bear a team, it is well to cross harrow the wheat immediately after. This lightly covers the clover seed and does not injure the wheat. The modern alfalfa disk seeder is splendidly adapted for sowing Red clover, as the seeds are drilled in much as in the case of wheat, but not so deep. This machine may be used in the wheat without injury to the plants.

It is doubtful whether the average grower is using enough seed per acre. Not long ago a correspondent wrote that he was experiencing difficulty in securing a stand of Red clover. Upon further inquiry it was learned that he was accustomed to sow 4 pounds per acre. The average rate per acre is about eight pounds. In many cases it would pay to sow 12 to 15 pounds per acre. In Europe Red clover is usually seeded at the rate of 18 to 25 pounds per acre. There is little doubt but that the stand of clover might be greatly improved through more careful attention to the condition of the soil at time of seeding to see that the seed is properly covered. If necessary, two or three harrowings of the wheat may be made to cover the clover seed, without detriment to the wheat. There are other reasons for the failure of clover which cannot be discussed at this time. The lack of lime, the low content of organic matter in the soil and the need of phosphoric acid and potash are also factors to be reckoned with. In the Eastern States it may be necessary to discontinue the use of a nurse crop and seed the clover on especially prepared land late in the summer. Our experience has been that it is not difficult to secure a perfect stand in this manner.

The Double Function of Top Dressing Wheat

GEORGE JORDAN.

The benefits arising from top dressing wheat are several, although, of course, the increase in yield is the main object sought. Top dressing gives the young plants a greater power of resistance against disease and the Hessian fly; it advances the date of maturity from ten days to two weeks; makes for a stiffer straw, produces a better market grade; and finally, is a means of materially increasing the yield.

But there is another profit accruing when this method is rightly practiced; namely, the increased growth of grasses seeded in the wheat. It is well known that the most critical period for the new grass when seeded in this manner follows the cutting of the wheat. At this time the direct hot rays of the sun are seldom relenting in their onslaught on the weak and unprotected seedlings, and it often results that what would otherwise be a successful "catch," is scorched, burned and blistered until many of the plants are killed.

Top dressing comes as a boon to the farmer who seeds his grasses with a nurse crop. Clover, when starting, is unable to gather its nitrogen from the air. Its root growth is not developed to the extent of having many nodules full or bacteria to perform this nitrogen-gathering function, and furthermore, the phosphoric acid so necessary to good clover growth is not naturally available in the hard and oftentimes baked soil to the extent of furnishing a sufficient quantity of this element to properly boost the growth.

With timothy, the same condition seems to be almost universally prevailing, although this grass requires less phosphoric acid than does clover. It requires, however, an abundance of ammonia for its best development and it is here that a reasonably high percentage of ammonia proves its worth, even though the cost be greater.

It is the common experience of farmers both in the East and through the corn belt of the Middle Western States that a catch is seldom a failure when the soil is in good tilth through a plentiful supply of humus, is sweet through liming, and has a sufficient amount of available plant food to start the seedlings toward the vigorous growth that is absolutely necessary if the hay crop is to be a success. A little observation will show that dry weather plays a less important part in killing out of new seedlings where the proper attention has been otherwise given the crop.

There are few farm tasks more easily done than the one of top dressing the wheat field. Spreading from 175 to 300 pounds of fertilizer of a formula around 3-12-0 with the grain drill or fertilizer distributor takes very little time, and aside from the profit to be reckoned from the increase of what are to be high priced bushels of wheat, the meadow will be started on the road to profit making.

Maryland.

Queries Answered

Cowpeas for Green Manure.—Miss E. G. B., Delaware, writes: "In sowing cowpeas for green manure to be followed by wheat, how much seed should be used per acre? Also, at the time the peas are seeded, how much 16 per cent. acid phosphate should be used per acre? Would you recommend something in the place of acid phosphate?"

The usual rate of seeding cowpeas is six pecks per acre. That is, when the peas are sown solid like oats or wheat, and not cultivated. It would be well to use 200 to 250 pounds of 16 per cent. acid phosphate per acre. Be sure the peas are thoroughly inoculated and good results should follow.

Value of By-product Lime.—C. R., Pennsylvania, writes: "Would lime containing the following analysis be good for soil, and how much would you advise using per acre 97 per cent. carbonate of lime? Calcium oxide, 54.93 per cent.; carbon dioxide, 42.23 per cent.; magnesium oxide, 0.95 per cent.; insoluble matter, 1.40 per cent.; moisture, 0.37 per cent. It is a by-product from the acetone factory and looks like ashes except that it is heavier. The cost is 75 cents per ton or load."

This material should prove a very satisfactory source of carbonate of lime, since the total oxides of calcium and magnesium amount to nearly 56 per cent. You should apply at the rate of 2 tons per acre, as the carbonate of lime is only half as effective per ton as freshly burned lime in sweetening the soil. You should take advantage of this rather moderate price and apply freely.

Chicken Manure for Sweet Potatoes.—F. C., Delaware, writes: "What kind of material would be the best, and how much of it should be added to a ton of chicken manure for sweet potatoes? Last year I used a ton of chicken manure, a ton of acid phosphate and one-half ton of salt. It killed most of my plants the first setting. I had to burst the rows and run them again.

It would be a good plan to mix with each 100 pounds of fresh poultry manure 15 to 20 pounds of acid phosphate, or if the manure is air dry, add 30 to 40 pounds of acid phosphate to each 100 pounds. In the absence of potash it would be well to include 8 or 10 pounds of gypsum or land plaster with each 100 pounds of the manure. Your bad results last year were evidently due to the large amount of salt used.

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CELEBRATED D. B. Brand 98.50% pure or better, average analysis 99.70%, northern grown, hardy, vigorous, **the highest grade obtainable.** Every bag tested in our own Laboratory both for Purity and Germination and sold direct to you at wholesale prices subject to our famous "ten-day-test-money-back-if-you-want-it guarantee.

Dibble's Seeds produce bumper crops. 1000 tons hay on our own farms last year of which over 500 tons were Alfalfa.

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Hoffman's Northwest Clover Seed

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Earlier, Hardier and More Productive

The superiority of "NORTHWEST" Alfalfa Seed has long been acknowledged. Clover Seed, Alsike and Timothy Seed grown in the Northwest have a like advantage. It is *earlier*, because of the short season in which it matures—*hardier*, because of its survival of Northwest winters—*more productive*, because of its extreme vitality. "NORTHWEST" Grass Seed succeeds where other fail. Less "NORTHWEST" seed need be sown per acre.

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International Harvester Company of America
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The Clipper is different in principle from all other grain and seed cleaners. It has been thoroughly tried out by years of constant use by thousands of the best farmers, the U. S. Department of Agriculture, Agricultural Colleges, Experimental Farms and hundreds of the leading seedsmen, seed corn growers, etc.

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The ALL STEEL-FRAME TWO-WAY SULKY

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handle just as easily and will turn the same size furrow as any other, with much less horse power. They save driving around the ends, leave no dead furrows or back furrows, and permit the driver to drop dead furrows where necessary.

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WORKS PERFECTLY. Frame of best steel and malleable iron; extra wide to prevent tipping on side hills. Pole adjustment simplest of any. Plow beams can quickly be turned to left or right, or to take more or less land.

Any of the thousands of farmers who use the Le Roy Two-Way Sulky Plow will tell you it is one of the best tools they have on the farm.

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POULTRY

Edited by F. V. L. TURNER

All letters, inquiries and requests in reference to poultry, should be addressed to the Poultry Editor of The Practical Farmer, Philadelphia, Pa.

Practical Poultry Talks

1917 and Poultry

On the very moment you read this get your mind fully set on the doing of everything that is going to build you a bigger, better and more profitable egg and poultry business. There has never been a greater opportunity.

Fix definitely as a part of your spring work the putting together of breeding pens that will give you a flock of youngsters that will produce the greatest profit next fall.

Put into your mental reservoir the old and true axiom that the "male is half the pen" and see that he is as good as you can buy, because he must be good to beget good. Pay two dollars for a male bird and you get a little more than he is worth as meat; pay ten dollars and you buy the blood of his ancestry, blood that is combined with a good many years of labor, intelligence and success.

Better by far pay ten dollars for one male than to pull down the egg laying capacity of ten or more females that are worth at least five dollars apiece. If the females you own are considered by you dear at three dollars each, mate them to a cheap male, a male without pedigree, without capacity to reproduce his kind and you will always be assured of cheap stock.

Put into the machinery of your poultry plant every incubator and brooder you can buy, beg, borrow or steal and raise every chick you can care for. You will need them next fall—eggs are going to repeat the price history they have made since November 1, 1916, to the present time (an unheard of scale in this country). Put up an additional house (its cost will be paid for the first year) to hold the additional flock you should raise this spring and summer.

Be alert to the situation—live with the progress that is speeding up every mile of the way to success. Go along with the hundreds of poultrymen who are attaining success with modern practices.

Changes in every line of endeavor take place almost over night. Strange as it may seem, but as true as the fact itself, New York as an egg market has held, for several weeks, second place to Philadelphia in price—white eggs in Philadelphia are bringing from 6 to 10 cents a dozen more than is being paid in New York. And this change occurred without a single premonitory sing, by natural processes without warning. How long this condition will continue cannot be guessed at, but the advantage to those egg producers nearer to Philadelphia's market is worth while if for only three or four weeks, so far as price is concerned, and the chances for establishing a permanent trade are many.

There are in this country poultry men and women by thousands who know how to feed chicks and how to mature those that live, but there are not as many that can raise 60 per cent. of all hatched as there are those that raise 30 per cent. Annually more chicks die for want of proper knowledge and care than live through intelligent handling. To find the means to a better end, to find the feeds that will reduce chick mortality is a good many milestones on the road to success.

As nearly as has ever been learned, there is not a fixed combination of foods that will insure a low mortality under all conditions, though it is generally agreed that a certain set of feeds in a dozen or more combinations, will, if temperatures, housing conditions and care are about the same, bring to maturity the greater number of chicks hatched. Undoubtedly, a great many of the stories which will appear February 15th will detail the methods employed in handling and feeding brooder chicks and some valuable data will come from the experiences of others.

Progress in chick rearing has reached the stage where more and better chicks are raised because rations have been put upon the market that raise all livable chicks; brooder practice has reached the stage of automatic feeding from the third or fourth day; water is now a lamp-warmed necessity to prevent chilling and lessen labor.

It has always been known that feeding time meant a frightened flock of youngsters that ran to the corners when feed was thrown in the pens of continuous brooders or into colony houses. This is only natural—the old hen gets away from all humans and animals as soon as her brood is able to travel.

Cold, ice cold, water is not enjoyed by chicks any more than older fowl. Any labor saving device means to the enterprising poultryman or woman more time for other work and greater success.

What We Are Asked

Chick Rations.—P. R. W., New Jersey, writes: "Will you give us the rations used by some of the big poultrymen in raising chicks until six to eight weeks of age?"

Prefacing rations for chicks, let us state that it is generally accepted that chicks should not be fed until at least 24 hours old; some chicks will eat within a few hours of hatching, others will not eat for 48 hours. The yolk of the egg that was hatched into a chick is absorbed by the chick as food and can be found in the chick's intestines (in some cases) seven days after hatching. Every effort should be made to start digestive processes in the chick, sand usually accomplishing this purpose; some appetizing and digestive stimulant helping to continue the processes. Black pepper, one ounce to five pounds of ground feed, is excellent and harmless, whereas red pepper is the opposite. Powdered charcoal is an efficient sterilizer and should be used at the rate of two ounces to five pounds of ground feed.

Hunter suggests the following system of feeding: One part of chopped fine hard boiled eggs (at least 30 minutes boiled) to three parts of bread crumbs for the first few days, followed then for six weeks with coarse oat meal moistened with skimmilk, and alternated with dry bread crumbs every two hours until about 3.30 P. M., then fill them up on cracked wheat or corn. Feed meat twice a week and green food as often as convenient. After six weeks, early morning bread crumbs; about 10 A. M. oat meal; 2 P. M. cracked wheat; 4.30 P. M. whole wheat and cracked corn. Meat and green food as previously suggested. When the birds are ten weeks old feed as for grown fowls. The foregoing system is difficult and laborious and has objectionable features.

Lambert feeds as follows: Corn, wheat, oats, equal parts, ground. Mix with milk, bake and feed all they will eat five times a day, three-hour intervals. When four weeks old alternate the baked cake with cracked corn, cracked wheat, etc. This is a better, safer and more easily handled ration, but still without adequate results in lowest mortality.

Another ration (not credited to its originator) is as follows: Corn meal, 2 lbs.; ground dried stale bread (be sure it is not moldy), 1 lb.; ground hulled oats, 1 lb.; ground rape seed, 2 ounces; ground millet, 1 ounce; ground dried bone, 1 ounce; black pepper, ¼ ounce; powdered charcoal, ⅛ ounce; Epsom salts, ½ ounce; bicarbonate of soda, 1-10 ounce. Keep the mash, thoroughly mixed, before the chicks all the time for three or four weeks, feeding from automatic chick feeders the following grain mixture: Cracked wheat, 5 lbs.; cracked corn (chick size), 5 lbs.; cracked hulled oats, 2 lbs.; whole millet, 4 ounces; rape seed (whole), 2 ounces; cracked barley, 1 lb. Sift beef scrap and add ½ lb. of the fine part to the grain mixture on the tenth day. Skimmilk can be given, if conveniently obtained, at any time. Sour milk is always safer than sweet milk. The labor in the above system is almost nothing compared to ordinary methods.

Disinfectants and cleanliness will keep things going along the contamination line and prevent diseases of a contagious nature. Water can be provided through several means in such a manner that freezing will not occur in the most severe weather. One method is to attach an air-tight enclosure in the shape of a small box, to the outside of the colony house, the front hinged (all tight fitting) and an oil lamp placed therein; a small vessel of water is placed on the inside of the house against the chimney. A 2-foot pipe, 3 inches in diameter, carries off the lamp fumes. The top of the pipe must be fitted with a tee to keep out rain, snow and high winds.

Of course, an opening is made in the side of the house to allow just enough of the drinking vessel to be against the chimney. Empty the drinking vessel at night and put out the lamp. Fill the drinking vessel with warm water in the morning and start the lamp going.

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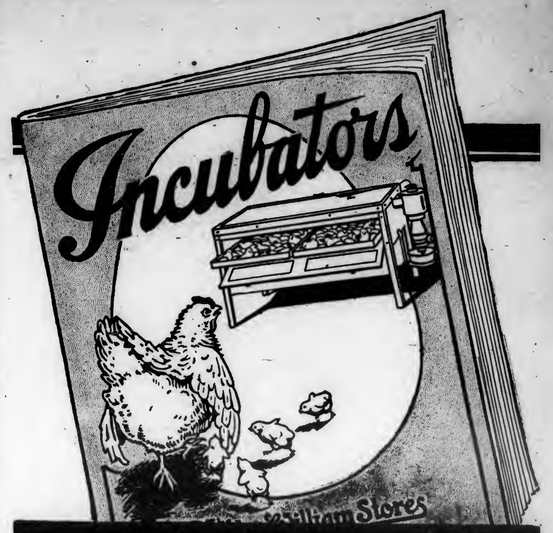

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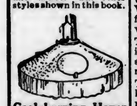

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TOPIC NO. 1213, FEB. 15.—What methods do you use for testing your seed corn? Do you use one of the commercial graders now on the market? Do you treat the corn to guard against injury by crows? Tell us of any other way you handle the seed so as to insure a perfect stand of corn.

TOPIC NO. 1214, MARCH 1.—Do you find oats a profitable crop? Do you broadcast or drill them and what fertilizer do you use? Can you tell us how much they cost you an acre or a bushel and what they return? What success have you had cutting them green for hay? Have you found any crop which you can profitably substitute for them?

TOPIC NO. 1215, MARCH 15.—Describe the type of fence you find the most satisfactory on your farm. How long does it last and what does it cost per rod erected? How many acres on your farm and about how much each year do your fences cost? What have you done since you have been on the place, to reduce this yearly charge?

Topic No. 1212—What has been your experience feeding corn silage or mixtures of it to horses, mules, sheep, swine or poultry?

(Concluded from front cover page)

the same amount of chopped-up roots, such as ruta-bagas, make a fine mixture to give the pregnant ewe during the winter, while a little more per day may be allowed to the fattening wether or buck that is accustomed to the juicy, succulent feeds.

R. B. R., Ozark, Ill.—If I could not have the right kind of silage for my poultry and brood sows (especially these) I guess I would quit the business. I used to raise them without silage, but I can do it so much easier and make so much more money with silage that I would not think now of doing without it. However, there is much difference in silage. I put up silage that is better than the ordinary. I like good things to eat myself, and I have a great hobby of making all kinds of feeds very palatable for animals to eat. You see, anything animals relish they will eat lots of.

I always plant the old-fashioned Brown Crowder peas in my corn, and they climb to the top of every stalk, wrapping it with lots of vines, and large pods of rich peas hanging all over. These peas seem to be very rich. I manage to have a late growth of clover or other legume to run in with the corn. I have my own cutter and see that the knives are set to cut everything very fine. Now, with large ears of corn, lots of peas and vines, many of the peas ripe, and green clover about half the bulk of corn, all cut up together and packed well down in the silo, you have a wonderfully palatable silage; when it is doped out to the chickens and sows you ought to see them eat it. My sows are always healthy, and I have been getting about twice the number of eggs the last three years, since making and feeding this kind of silage. It is good, of course, for sheep, horses and mules, but I have taken special notice of the chickens and sows in this case. My son also has a large pen of rabbits and he has fed them on this silage with very little else now for a year, and he has had excellent results. Not every farmer has the clover, but every farmer can have the peas if he only plants them when planting the corn, and they are a sure crop.

M. J. R., Edinboro, Pa.—For about ten years we have been feeding silage to horses. We winter about 20 head; some are brood mares, some growing colts and some are mares which did not get with foal and are used to do the small amount of winter work on the farm and will be used to do the work on about 200 acres of land in the spring. Fourteen of these horses and colts are kept in a large covered shed, not tied, and have access to a nearby stream of water. They eat out of one large, long manger with tight bottom, and receive, twice a day, what clover hay they will clean up, and then a little later two bushels of corn silage, rich with nearly mature corn, and spread over this 10 quarts of oats and two quarts of oil meal.

We have been very well pleased with the condition and health of these animals. We have had but two cases of sickness among this number in ten years, and no deaths. We consider this an economical ration, leaving our oats for sale, and at the same time very good for the horses. Care should be taken not to feed moldy or frozen silage to horses. And horses to be worked in the spring should be given an additional grain ration for two or three weeks before hard spring work begins.

E. M., Akron, O.—Silage, the universal cow feed, is also a feed which is very valuable to the feeding of other farm stock. Horses and mules relish good silage; of course, some mules and some horses do not eat it, but, as a rule, they like it very much. We feed about 3 to 4 pounds a day, and some animals eat as high as 7 pounds. Corn and oats were fed along with the silage, but this silage was not fed to take part of the ration as much as for the health of the animals. It kept the bowels open and gave the hair a fine, smooth appearance, and they seemed to have more "snap" than the one horse and one mule that did not like the silage. We figured that the silage cut down the feed bill to an extent of one ear of corn and nearly a quart of oats. We did not feed any sheep or swine, but fed the chickens some silage, which was first cut up in very fine pieces. This was placed in a trough and they would eat a great part of it. As to the good effects, I only know our chickens laid during the whole winter, although they only had an old wood-house, which was very cold, to sleep in. This helped to give them a feed something like grass. They do not eat the corn in the silage, possibly due to the sourness of the kernels.

J. E. F., Wellsboro, Pa.—I have never fed much silage to horses (never kept mules), for the reason that we have never had it to spare. I have fed enough of it to know that they relish it very much, and I do not know why it should not be fed for a part of their ration. I have been feeding silage to sheep for a number of years. With sheep as with cows, after a farmer gets to feeding it he does not know how to get along without it, especially breeding ewes and after they have lambs. In feeding silage to sheep no more should be fed than will be cleaned up, as sheep are very dainty and like clean feed. Good corn silage and clover hay make an ideal feed for sheep. For grain ration after lambing time use Canada field peas, oats and barley, ground and sprinkled on the silage, and you will not have to borrow trouble as to whether the ewes will have milk for their lambs even though they are dropped in February. Last winter we fed two bushels of silage to 16 ewes; we now feeding three bushels to 23 ewes twice per day, clover hay at noon.

In time past I have found it very profitable to feed silage to hogs for a maintenance ration. If you feed about two quarts of silage and about one quart of chop made of Canada field peas and oats and barley mixed with four quarts of warm water, twice per day, for a 200-pound hog, and a little clover hay now and then, you can rest assured that breeding sows will come through the winter O. K. and raise good, strong litters of pigs. Wheat middlings and wheat bran are also good to mix with the grain ration. I have never had a sick hog. Some years ago we fed silage to chickens, but had a number die and get lame, and so we quit feeding it to poultry. We do not know whether the silage caused the trouble or not. Sweet apples, cabbage, turnips and clover leaves scalded make good enough green feed for us to feed the chickens.

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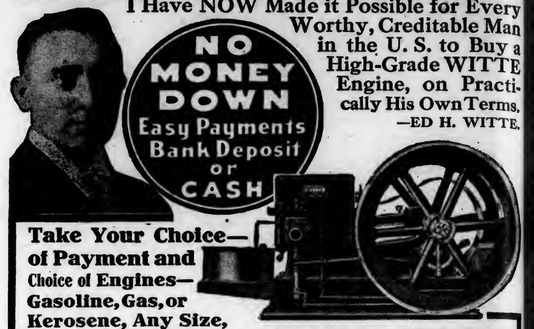

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The Women's Exchange

This is the farm women's *own* department—for them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address
WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

FEBRUARY 15.—Tell us about keeping summer boarders. What things do you do which seem to please them the most? How much do you charge a week and do you find it a profitable undertaking?

MARCH 1.—What have you found to be the greatest labor saving device for your inside duties? Tell us how much it cost and what influenced you to buy or install it. What are some of its advantages?

MARCH 15.—What do you find best for walls, a plaster tint, paper, oil paint or water paint? Tell us what success you have had applying any or all of these yourself. Give us an idea of how you treat the different rooms.

Get your contribution in early If it does not reach us at least 15 days before the date of issue, it will be too late.

In what ways during the past year have you made extra spending money for yourself or for some special purpose?

Mrs. H. H., LaGrangeville, N. Y.—For the women in rural communities there are plenty of ways of earning a little extra spending money. I have tried several very successfully—canned fruits and jelly is one way, and ready sales can be made in nearby towns and villages. Many times among the neighbors who have large families of children, old people or invalids to care for and no time for these extras. Ice cream can be made where one has ice; orders taken for same on certain days and disposed of among neighbors. Beekeeping is profitable. Strain the honey and bottle ready for sale; use wide-mouthed containers, such as peanut butter or mustard comes in. Fresh grated horse-radish also sells well. Hatch bantams and sell at about two months of age.

I have made and sold "hop pillows." The cloth should be thin, such as old curtains or lawn dresses, scrim or dotted swiss if new. Then for outside cover cretonne stitch in fancy color an inexpensive linen. These are for invalids and old people, as they are very conducive to sleep and restful to the nerves.

One or more days a week in summer one can dispose of cocoa, cake, sandwiches, lemonade or ice cold milk to auto parties. Orders can be taken for small Christmas trees, even clothes line poles and props are sold readily in towns. Raising pumpkins, squashes or cucumbers for pickles, any farm woman can do.

I have made money by all these methods and others, such as taking orders for magazines, soldering for men folks, mending bags, varnishing, staining and upholstering for neighbors.

Braiding rag rugs, which are in demand, interests the old aunties and children in the home, as they can both cut and sew the rags and there is absolutely no expense except a little light work.

I hope these hints may be of use to some, and that they may inspire some who think the farm women have no chance.

Mrs. A. S. L., Bridgeton, N. J.—Last year was clean-up year; it did not cost anything but we made money that way. For ten years I had been saying "no" to junk dealers as they scour the country asking for rags, old iron, rubber, etc. With the prices way up it seemed time to have a clearing out. All old bicycle tires and cast-off tires of three autos made an accumulation of rubber which the dealers were eager for and paid 5 cents a pound. This amounted to several dollars. Then a 10-year rag bag was brought from the third story and added to the "wood-house" rag bag and these sold for 2 cents a pound. All the old burlap sacks that had accumulated for a long time were gotten together and sold for a good price.

The big box in the wood-house where all useless old iron had been thrown was cleaned out, weighed and sold at ½ cent a pound. Then the magazines that had been piled on a big shelf in the wood-house were hauled out and sold at 30 cents a hundred. Some pieces of zinc were sold at a special price.

We felt grateful for the added room left by the vacancies. I could look the matter up and tell you just how many pounds of each were sold, and the number of dollars that swelled the purse, but that is not the helpful idea. It is that each of these things were considered waste as they were discarded, but all waste of a kind was put in its place, until nothing but waste sold for many dollars. Now I wish I could find a market for the accumulation of bottles of all shapes and sizes, and the piles of old shoes.

Mrs. S. M. J., Kentwood, La.—I find basket making very profitable. I gather material—the woods are full of possibilities—willows for fancy-work baskets, cross vine and rattan for clothes hampers, honeysuckle and bitter sweet for waste baskets, elm switches for egg baskets; this I tie in bunches, dry in the shade, soak in hot water and it can be woven more easily than when green and baskets do not shrink.

The long needles from the fragrant yellow pine make dainty little receptacles for trinkets or to hold a bowl of violets.

I buy tulip, hyacinth and other bulbs by the dozen, pot, and when in bloom sell them for from 25 to 50 cents each. I start plants of blue and white violets, also pansies, early in the winter, let freeze, then bring to a sunny window and they are blooming by the holidays. They sell readily, for everybody loves them. Flat pots of maiden hair fern with a few hyacinth bulbs or lily-of-the-valley pips set around the edge, are lovely for table decoration, especially if the pot is set in a quaint little "Indian basket" of willows. Long shallow boxes, painted green and filled with Double Moss Curled parsley make nice kitchen window boxes. A 5-cent paper of seed will make plants enough for a dozen or more boxes, and the average housewife would rather buy a box of growing plants than to plant seed and grow it herself.

E. W., W. Danby, N. Y.—Having a large family, I do not have very much time to earn extra money. For the same reason, there is not as much money as I would like to have to spend for good reading material for the family. This I earn in several ways. First, I have earned quite a little writing for the different farm papers. Second, I have earned several dollars selling buttermilk cheese to the city boarders near our place. I set the buttermilk on the back of the stove until the curd rises, then strain through a bag. After straining, I season with salt and just a pinch of pepper, then dampen with thick, sweet cream. Mix the cream through the cheese well, but be careful not to use too much. Now shape in balls about the size of a child's rubber ball. If you have some walnuts or hickorynuts, crack some and lay a half nutmeat on top of each ball; small, or Pimiento peppers stuck in them make the balls more tasty.

I have sold many sugar cookies and as every one exclaims over my cookies, I will give the receipt: Two cups granulated sugar, 1 cup shortening, 1 or 3 eggs (according to price), 1 cup sour cream (can use buttermilk), 2 teaspoonfuls of soda dissolved in the sour milk, 3 or 4 teaspoonfuls good lemon extract, flour to mix—not too stiff. Roll thin. The secret of good sugar cookies is a very hot fire to bake them.

I have taken The Practical Farmer and several other farm, children's, poultry and religious papers which otherwise I could not have had, by earning the money in the ways mentioned.

Mrs. W. S. M., St. Albans, Vt.—Perhaps to me the pleasantest and most enjoyable way I have ever earned money is by writing articles for some of our farm and home magazines. I enjoy the work, have had fair success and good returns for the time spent. If it were not for other pressing duties I would like t. devote more time to this pleasant pursuit. Then, too, one feels as if these little articles helped some of our fellow laborers to solve their problems.

I also earned a nice little sum at our county agricultural exhibit, where I won first premium for white bread and third for canned goods, the bread being from

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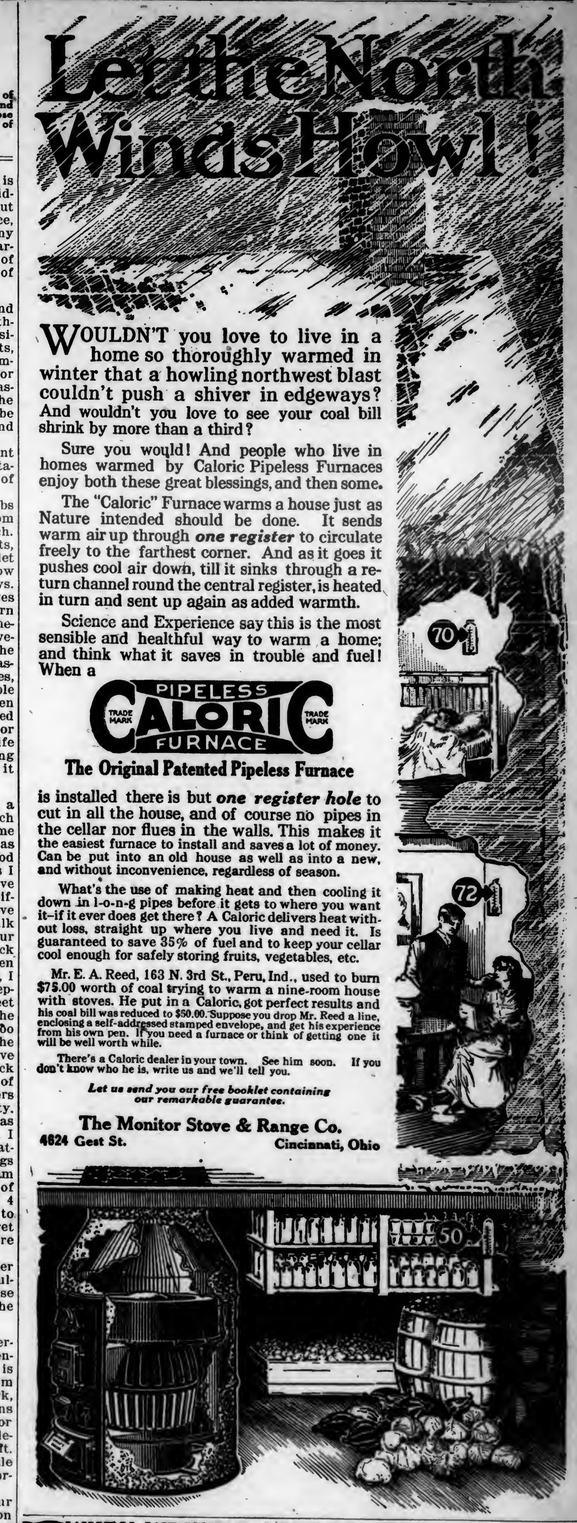

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Mrs. C. S. W., Media, Pa.—I have combined pleasure with profit in the use of my Kodak on the farm. There is always a demand at remunerative prices for good pictures, and I do not know of any place where there is a greater variety of subjects than in the country. One of the secrets of success in this work is knowing where to dispose of the different pictures. If one is not familiar with the various publications which might use them a visit to a public library and a careful study of its periodical file will be time well spent. It always helps to sell a photograph if there is an account of what it represents sent with it, but this is not essential. What is wanted are pictures which tell a story or have an art value. Family groups, or where an individual is placed in a picture merely to be in it rather than because he is part of it, are only good for your album. Needless to say, all pictures should show detail, have contrasting colors and be printed on glossy paper. If you want them returned to you, be sure to enclose sufficient postage, and if you hope to continue long in the business do not try to sell a picture to another paper after one has bought it. Prices received for them will vary according to your pictures and who buys them. I have received as high as $7 for one 4x5 photograph and 250 words. More have been returned to me, but I have sent them some place else, and taking all in all, find it a good way to make extra money.

What Our Farm Women Ask and Answer

Mrs. W. S. M., Vermont, writes us that to make pop-corn balls, have ready 6 quarts of popped corn. Into an agate kettle or deep basin put a large cup of molasses and a generous half cup of sugar, a teaspoonful of vinegar, a tablespoonful of butter and let this boil until a little of it dropped in cold water will harden. Add a pinch of baking soda and stir briskly for a few minutes. Mix with corn and stir thoroughly. Mold into balls with hands which have first been greased with butter.

Mrs. E. S., Pennsylvania, in a letter to us says: "The first thing I look at is the Women's Exchange. I would like to see printed, some time, how to make mush."

Mrs. C. A. M., New Jersey, asks us: 1. How can broken china be mended without the aid of a patent glue? 2. How can ivory handles on knives and forks be whitened?

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

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8147.—Girls' dress. Cut in sizes 6, 8, 10 and 12 years. The dress has a yoke at the front and back and a one-piece plaited skirt.

8163.—Ladies' overblouse. Cut in sizes 34 to 44 inches bust measure. The blouse slips on over the head.

8176.—Ladies' dress. Cut in sizes 36 to 42 inches bust measure. This dress closes at the front; collar may be in pointed or round outline and the skirt is cut in two gores.

8158.—Children's coat. Cut in sizes 2, 4, 6, 8, 10 and 12 years. The coat has plenty of fulness and a yoke top.

8157.—Ladies' skirt. Cut in sizes 24 to 34 inches waist measure. The skirt is cut in five gores, plaited at the back and has a separate front belt and slightly raised waist line.

8177.—Children's dress. Cut in sizes 2, 4, 6 and 8 years. The dress is cut in one piece, closes at the front and may have long or short sleeves.

8173.—Ladies' dress. Cut in sizes 36 to 44 inches bust measure. This garment is suitable for a house dress, closes at the front and has a three-gored gathered skirt.

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Other People's Business

The Romantic Career of the Practical Miss Dale
By HARRIET LUMMIS SMITH

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CHAPTER V.—DIANTHA GROWS UP.

Now that Annabel Sinclair had no immediate use for Persis' services, Diantha's wardrobe could receive attention. The girl presented herself at the dressmaker's late one afternoon, her smooth forehead disfigured by an irritated frown, her mouth resolutely unsmiling. Under one arm she carried a roll of cheap white lawn. Annabel frequently commented on the uselessness of buying expensive materials for a girl who grew as rapidly as Diantha, though the reasonableness of this contention was slightly discounted by her recognized ability to demonstrate that the cream of things was invariably her portion, while an all-wise Providence had obviously designed the skimmed milk for the rest of the world.

Her eyes upon the girl's averted face, Persis measured off the coarse stuff, using her arm as a yard-stick. "Hm! Even with skirts as skimpy as they are now, this won't be enough by a yard and a half. Better call it two yards. It's high time your skirts were coming down where they belong. You can't stay a little girl forever."

Some magic had erased the fretful pucker between Diantha's brows. The grim ungirlish compression of her lips softened into angelic mildness. As she turned upon Persis, she looked an older sister of the Sistine cherubs.

"How long—about how long do you think it had better be, Miss Persis?"

"I should say"—Persis looked her over with an impersonal air, lending weight to the resulting judgment—"I should say about to your shoe-tops."

Had she guessed the consequences of such an expression of opinion, she might have modified her verdict or at least held it in reserve. A tempest swept the room. Persis was seized, whirled this way and then that, hugged, kissed, forced to join in a delirious two-step, with scarcely breath to protest, powerless in the grip of the storm she had herself evoked, she finally came to anchor between the secretary and the armchair, Diantha still holding her fast.

"Shoe-tops! You *did* say shoe-tops, didn't you, darling Miss Persis?"

"Yes, I said shoe-tops, and I'm glad I didn't say a train. A real long dress would have been the death of me, it's more'n likely. For all you're as tall as Jack's bean-stalk, Diantha Sinclair, you're not grown up yet."

Persis freed herself, smiling ruefully as she arranged her disordered hair. The delicious girlishness of the outburst in which she had involuntarily participated had the effect of challenging her own obstinate sense of being on the threshold of things, and making her wonder if perhaps she were not growing old. That the passing shadow on her face failed to attract Diantha's attention was due less to lack of insight than to youth's cheerfully selfish absorption in its own problems. "May I pick out the style from the grown-up part of the fashion books?" was the girl's breathless question.

"It's got to be simple," Persis warned her sternly. Then softening: "But good land! Grandmothers nowadays are wearing simple little girlish things with ribbon bows in the back. Pick out what you want. Everything in this month's book is just about right for sixteen."

As Diantha gave herself to rapturous study of the fashion-plates, Persis studied her. "She's in a fair way to make a beauty. Annabel at her best never held a candle to what this girl is likely to turn out. Annabel's looks are skin deep. Diantha's have top-roots running to her brain and her heart, too. Only she ought to be happier. 'Most any girl face is pretty to look at if it's happy enough, same as 'most any flower is pretty if it grows in the sun."

A harrassing reflection troubled Diantha's bliss. "Miss Persis, I haven't got a petticoat that comes below my knees."

"I'll make you a petticoat the same length as the dress. That's always the best way. A skirt that's too long looks as if you wanted to show the lace, and one's that too short looks as if you were trying to save cotton cloth, and I don't know which is worse." To herself Persis added: "If she went home and asked her mother for a long petticoat, the fat would all be in the fire."

For a woman at least as conscientious as the average of her sex, Persis was singularly unmindful of the enormity of encouraging a daughter to act in defiance of her mother's wishes. Had she been called upon to defend herself, she might have explained that she had small respect for the authority of a motherhood which had never progressed beyond the physical relationship. Annabel, a reluctant mother in the beginning, had been consistently selfish ever since, and Persis gave scant recognition to parental rights that were not the outgrowth of parental love. Moreover, the project she had in mind was of too complex importance for her to allow it to be sidetracked by petty scruples.

"Like enough she'll refuse to pay my bill," thought Persis, with a grim smile, as she watched Diantha turning the gally colored plates like a butterfly fluttering from blossom to blossom. "I guess she won't go as far as that though, as long as there ain't another dressmaker in Clematis she'd trust to make her a kimono. If she says anything, that'll pave the way for me to give her a good plain talking to, and even if I never get a cent for the dress, I might as well give my missionary money that way as any other."

The rush of the season—Clematis is sufficiently sophisticated to know in what months propriety demands overworking one's dressmaker and milliner—was already over, and the little frock made rapid progress. Cheap and plain and simple as it was, its effect upon the wearer, even in its stages of incompleteness, was so striking that Persis sometimes forgot her official duty in the satisfaction of a long admiring stare. And probably in her sixteen years of existence, Diantha had never so nearly approximated all the cardinal virtues as in that idyllic week. She besieged Persis with offers of assistance, pleading for permission to pull basting threads or overcast seams. At home she was gentle, yielding, subdued. Her father, having learned through bitter experience how open to the attack of a million miseries love makes the heart, had resolved that fate should not again trick him. He had steeled himself against the appeal of Diantha's babyhood and watched unmoved her precocious development. The mocking politeness which characterized his manner toward his wife was replaced in the case of the daughter by a distant formality. Yet now as Diantha went about the house with dreamy eyes and a half smile on her lips, there were times when the father looked at her almost wistfully and wondered of what she were thinking. With all due respect to the human will, we must acknowledge ourselves creatures of circumstance in no little degree, when two yards of lawn, retailing at twelve and a half cents, can prove so potent a factor in character and destiny.

Diantha's mother might have prescribed quinine had she noted anything unusual in the girl's demeanor. But Annabel had reached a crucial stage in her flirtation with Thad West. The boy was developing a gratifying jealousy of the tenor singer in the Unitarian church choir and must be treated with a nice commingling of indulgence and severity to prevent his asserting himself in the crude masculine fashion, and either terminating the intimacy or else permanently getting the upper hand. Annabel was enjoying the crisis of the game and found it impossible to spare from her own absorbing interests a thought for such a minor consideration as Diantha's moods.

Diantha anticipated the time when she was to call for her finished frock by more than an hour. "I know you're not ready yet," she apologized, as Persis looked at the clock. "But I thought I'd like to watch you work, if you don't mind."

"Of course I don't mind, child. Just put those fashion books on the table and take the easy chair." Persis bent over the finishings of the little frock with a vague satisfaction in the neatness of the motionless figure. She was growing fond of Diantha, a not unnatural result of the adoring attention Diantha had lavished upon her for a week past. But because Persis was a woman with a living to make, and

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Diantha was a girl with a dream to be dreamed, scarcely a word was spoken till the last stitch was taken.

"There!" Persis removed a basting thread with a jerk, making an unsuccessful pretense that the finishing of this dress was like the completion of any other piece of work. "There! It's done at last. I suppose you'll want to try it on."

"Yes," said Diantha, "I'll try it on." And as the faded blue serge slipped from her shoulders to be replaced by the white lawn, the Diantha who had been, took her departure to that remote country from which the children never come back.

Persis was almost appalled by the result for which she was principally responsible. The tall Diantha in a dress to her shoe-tops was disconcertingly unlike the little girl she had known. She looked older than her years, stately, self-contained and beautiful. It was not till Persis had fortified herself by the reflection that she might as well be hung for an old sheep as for a lamb, that she ventured another revolutionary suggestion.

"Diantha, I s'pose you'll make some change in the way you do your hair?"

"Yes, indeed." Diantha, scrutinizing herself in the mirror, frowned at the drooping curls with an air of restrained disgust. "This way is only suitable for children."

Persis' negligent gesture called attention to the open door of the bedroom. "There's a box of hairpins on the dresser. If you like, you can fix yourself up and surprise your mother."

Diantha vanished swiftly. She had no illusions regarding the nature of the coming surprise. Her mother would be very angry, but the sooner that storm had spent itself, the better. Relentlessly the golden curls were sacrificed to the impressive coiffure of the woman of fashion. For a novice Diantha was remarkably deft, her skill suggesting periods of anticipatory practice with her door locked and no eyes but her own to admire the effect.

During the progress of this rite, Persis in the adjoining room, looked at the clock, glanced at the window and then paced the floor, for once in her well-disciplined life too nervous to utilize the flying moments. Persis was in the dilemma of a stage manager whose curtain is ready to go up, and whose *prima donna* is about to appear, while the audience has failed to materialize. To such mischances does one subject one's self in assuming the responsibilities of a deputy-providence.

Then her brow cleared, even while her heart jumped into her throat. The gate clicked, and a lithe figure swung up the path. Persis took her time answering the peremptory knock.

"Good afternoon, Miss Persis. Mother said that you—"

"Walk in, Thad. Yes, I've a little package to send your mother. Sit down while I look for it."

Would the girl never come! The curtain was rung up, the audience waiting. But the stage was empty. How long a time in Heaven's name did Diantha expect to spend in combing her hair? "I should think she was waiting for it to grow," thought the harrassed Persis. Very deliberately she opened and closed every drawer in the old-fashioned secretary, though she knew the upper contained only old letters and the second, garden seeds.

Thad was fidgeting. "If you can't put your hand on it, Miss Persis, don't bother to hunt. I'll drop in again in a day or two."

"Just a minute, Thad. It must be right around here. I can't—ah!" Persis forgot the ending of the unnecessary sentence. For now Thad West was at liberty to leave whenever he pleased.

A tall slender figure advanced into the room. Diantha's grace had always made her an anomaly among tall children. Her hair was parted and drawn back simply, after the fashion doubtless designed by earth's beauties, since it is the despair of plain women. The yellow curls, sacrificing their individual distinction, had magnanimously contributed to the perfection of the exquisite golden coil at the back of her shapely head. No one would have looked twice at the plain little lawn, but it proved superior to some more pretentious gown in that it set off the charms of the wearer, instead of distracting attention from them. The unlooked-for apparition brought Thad West to his feet, and so Youth and Beauty met as if hitherto they had been strangers.

(*Continued next issue.*)

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Edited by W. H. TOMHAVE

Silage as a Factor in Beef Production

A great deal of experimental work has been done during the past ten years to determine the more desirable methods of beef production. This investigational work shows no feed has played a greater part nor given more satisfactory results than corn silage. The results obtained by using it as part or all of the roughage has been far beyond the expectation of its advocates. Prior to 1905 corn silage was looked upon as a feed for dairy cattle and of little value as a feed for beef cattle. This was due to the fact that most of the silage used at that time was made from immature corn, and in most cases from "Southern or ensilage corn." With the growing demand for corn as a feed for other classes of live stock and as a human food, the cost of producing beef became very expensive, and did much to discourage beef production. This was due largely to the old method of feeding, namely, that of heavy corn feeding from the beginning of the feeding period. This was not only the case with cattle that were being fattened for market, but also with the beef breeding herd. The condition which confronted those engaged in beef production was such as to make it impossible to produce beef at a reasonable profit unless some other method of feeding was adopted.

During the period referred to, considerable progress was made in improving the quality of silage produced. It was found that by making silage from corn that bordered on maturity, much better results were being obtained when fed to beef or dairy cattle, and that it contained considerably less moisture than when made from immature corn. When it was first fed to beef cattle it was used largely because of the beneficial effect that it seemed to have upon the digestive system, making it possible for the animal to utilize other feeds to better advantage.

Prior to 1908 practically all experimental work in studying methods of beef production was conducted to determine the rations that would give the heaviest daily gains and the highest gains for a pound of feed consumed, regardless of cost of production. This line of work met the needs of the beef industry when feeds were cheap, but with the general rise in the price of all farm and commercial feeds, it became necessary to change the line of investigational work. In seeking some means of reducing the cost of producing beef, it was found that by limiting the grain ration to one-half or two-thirds of a full feed during the first two months of the feeding period the total cost of production was also materially reduced, while the total gain and final value on the market were not reduced in the same proportion. This was especially true when corn silage formed a part of the roughage.

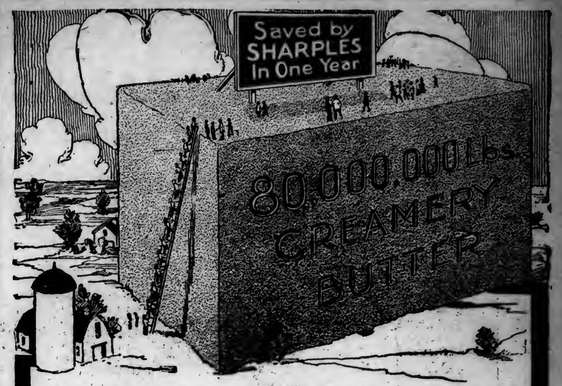
An experiment was conducted at the Pennsylvania Experiment Station in 1909-10, which demonstrated the value of roughage in a ration when corn was high in price and the value of silage as forming the major portion of the roughage. In 1911-12 another experiment was conducted to compare the advisability of feeding a full silage ration and adding corn to the roughage in one lot and withholding the corn in the other lot for a period of 56 days. Cotton seed meal was added to both rations in equal amounts from the beginning of the feeding period. Results demonstrated the market advantage of feeding a large amount of roughage in the form of silage during the fore part of the feeding period and withholding the grain feed.

In 1912-13 a feeding trial was carried on to compare a full silage ration as roughage and a limited silage ration, supplemented with mixed hay in such amounts as the cattle would consume. Cotton seed meal was fed at the rate of 2½ pounds daily per 1000 pounds live weight. No grain was fed during the first 56 days of the experiment. Lot 1 received the full silage ration and Lot 2 received the silage and mixed hay. Both lots of cattle were valued the same at the close of the experiment. This again showed a marked advantage in favor of the lot receiving the greater amount of silage.

During the past two years we have been conducting a number of experiments to study the value of corn silage as a roughage in feeding cattle. We have also made a comparison of rations in which different amounts of silage have been used, as well as others where no silage was fed. In each case the results obtained have been very favorable to corn silage.

After obtaining these favorable results from feeding a liberal silage ration, especially during the first period, we decided to carry one lot of cattle through the entire period on corn silage and cotton seed meal. This lot was fed during the past year while the previously mentioned experiments were in progress, and gave us some surprising results. The cattle made an average daily gain of 2.48 pounds per steer during the first 56 days. They consumed an average of 62 pounds of corn silage per steer daily and 2.17 pounds of cotton seed meal. The cost of making 100 pounds of gain was $5.85. During the second period these cattle were continued on the corn silage and consumed an average of 66 pounds per steer daily. At the end of 84 days the allowance of cotton seed meal was increased to 3½ pounds per 1000 pounds live weight daily. They continued to do well on this ration and made an average daily gain of 1.79 pounds per steer during the second period. The cost of producing 100 pounds of gain during this period was $9.90 as compared with $12.24 in the lot fed the same with the exception that it received an allowance of corn valued at 75 cents per bushel. The average daily gain per steer was 2.07 pounds, which is a very satisfactory gain when no corn is fed. The cost of making 100 pounds of gain for the entire period was $8.26, or considerably lower than any other lot. The cattle in each lot were valued by a Pittsburgh commission merchant and a cattle buyer for an eastern packing house. Those that received no corn but the silage and cotton seed meal were valued at within 5 cents per hundred of the lot receiving corn in addition.

In order to feed such large amounts of corn silage it becomes necessary to have some protein supplement. During the past three years we have been making a comparison of cotton seed meal and alfalfa hay as a source of protein in fattening cattle for market. Both lots of cattle received all the corn silage they could consume as roughage, but one received cotton seed meal at the rate of 2½ pounds per 1000 pounds live weight, while the other received 5 pounds of al-



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falfa hay per 1000 pounds live weight. The lot receiving the alfalfa hay did not make the daily gains, nor did they show the same improvement made in the lot receiving cotton seed meal. Figuring alfalfa hay at $15 per ton, the gains were made cheap enough, but the selling price was from 25 to 30 cents below the cotton seed lot, and the daily gains were not high—cotton seed meal was figured at $32 to $34 per ton. I believe that the unfavorable results obtained with alfalfa as compared with cotton seed meal is largely due to the bulkiness of the ration. When the large amount of bulk is fed, as was done in this case, the system of the cattle demands a more concentrated source of protein. It also seems that the presence of cotton seed meal in a ration of this kind has a tendency to stimulate digestion. Under conditions where alfalfa can be cheaply grown and figured at a low cost on the farm, it can possibly be used to advantage, especially if it is supplemented with a small amount of cotton seed meal.

From the results obtained at experiment stations, it seems that silage will play an important part in beef production. Cattle feeders all over the country are beginning to appreciate its value and the time is not far distant when they will have to build a silo or quit the business.

Ox Warbles Damage Cattle

T. J. TALBERT.

The characteristic lumps or swellings which may be found under the skin on the backs of many cattle from January until April contain grubs. If these grubs are allowed to remain, they will complete their growth, drop to the ground and transform to heel flies, which may re-infest the cattle during the spring and summer. The grubs weaken the cattle, cause them to fall off in flesh and milk, and decrease the value of the hide. The beef in the immediate vicinity of a grub becomes slimy and of a greenish color, and is known to the butcher as "licked beef." On an average, the damage to the hides is placed at one-third their value and the loss of beef to each infested animal ranges from $3 to $5.

The grubs may be pressed out through the opening at the top of the swelling. A sharp knife and a pair of tweezers will often facilitate the work of removing the grubs. Care should be taken to crush all the grubs removed, to prevent their further development and transformation into flies. It is advisable to examine the cattle for lumps or swellings over the back every two or three weeks during late winter and early spring to detect the pest. Various oils are often used. The lotion is either smeared over the infested region, or applied to the mouth of the breathing hole of the grub. One or two applications will usually be sufficient. The objection to this method is that the wounds do not heal readily unless the grubs are removed.

Some have claimed that the arsenical coal tar dips can be used in the case of large herds which cannot readily be treated by direct removal of the grubs. It still remains to be determined, however, whether practical means of eradication can be made by the use of dips. Dips applied during spring and summer will no doubt kill many maggots, and eggs which are attached to hairs on the animals' bodies.

The adult of the ox warble is a fly about half an inch long, very hairy, and resembles a small black honey bee. The females in depositing their eggs on cattle worry and torment the animals and frequently cause them to stampede for shelter or water. The fly does not sting or bite, but the animals seem to have

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What is Accomplished By Testing Cows

Exterminating Foot-and-Mouth Disease in Switzerland

As a result of the adoption of a Federal plan of combating the foot-and-mouth disease of cattle similar to that employed in the United States, the Swiss government has succeeded in practically exterminating the malady from its country, according to Vice-Consul James L. Burrell, of Saint Gall, Switzerland.

The Swiss agricultural interests suffered severely from foot-and-mouth disease for a number of years. Various efforts were made separately by the cantons to combat the disease, each in its own way, sometimes with injury to neighboring districts; but all remedies and rules and regulations were in vain. Finally, a Federal Veterinary Bureau was established and took up the work against the disease without regard to cantonal boundaries, adopting the practice of slaughtering all infected cattle. Through this method success eventually has been obtained. At first this general slaughtering met with great opposition from farmers and from veterinarians of the old school, but the success was so apparent that all prejudice was overcome.

The principal slaughtering of infected cattle was begun about the time of the outbreak of the present European war. Swiss scientists pronounced the meat fit for food, and, since no prejudice was manifested against it, much of it was fed to the troops.

Much of the success of eliminating foot-and-mouth disease from their boundaries is ascribed by the Swiss veterinarians to the elimination, through slaughter, of all diseased animals. It was found in hundreds of cases that infected animals, even after apparent complete recovery and most careful disinfection, still harbored the germs for several months and in many cases even longer. While it is anticipated that the disease may appear sporadically in the future, the authorities feel that they now know how to deal with it effectively.

Queries Answered

Sows Eat Dirt.—P. H. E., Maryland, writes: "I have a few old sows that had pigs in September. They are, and have been all fall, running around the yard to pick up chicken manure. One, especially, makes a round every few minutes to be sure to get it all rather than eat corn. They also dig in the ground and eat the dirt. Can anything be fed to stop it?"

It is quite likely that the brood sows are craving something that they do not get from the corn alone. If no protein feed is fed in addition to the corn, they are apt to root around, as seems to be the case with these sows. I would advise supplying them with an animal protein, in the form of digester tankage, or skimmed milk. If the skimmed milk is available, it can be fed in addition to the corn. Feed it at the rate of about three pounds of milk to each pound of corn. If the tankage is used, feed it at the rate of one pound of tankage to each ten or twelve pounds of corn. If ear corn is fed, the tankage can be fed in the trough in the form of a thin slop.

A Holstein-Friesian bull calf 10 months old, bred and raised by Bernhard Meyer at Finderne, New Jersey, recently sold for $21,500 at the Portland, Oregon, Sixth International Live Stock Exhibit.

an instinctive dread of its approach just as the horse has for the bot-fly.

Fish oil, train oil, and other substances are often recommended as spray to keep off warble flies. To be effective, their use would have to be continued during spring and early summer, and such a practice would be difficult and expensive and impracticable except in the case of small herds of valuable cattle.

The flies do not appear to attack cattle which stand in water or dense shade. *Missouri College of Agriculture.*

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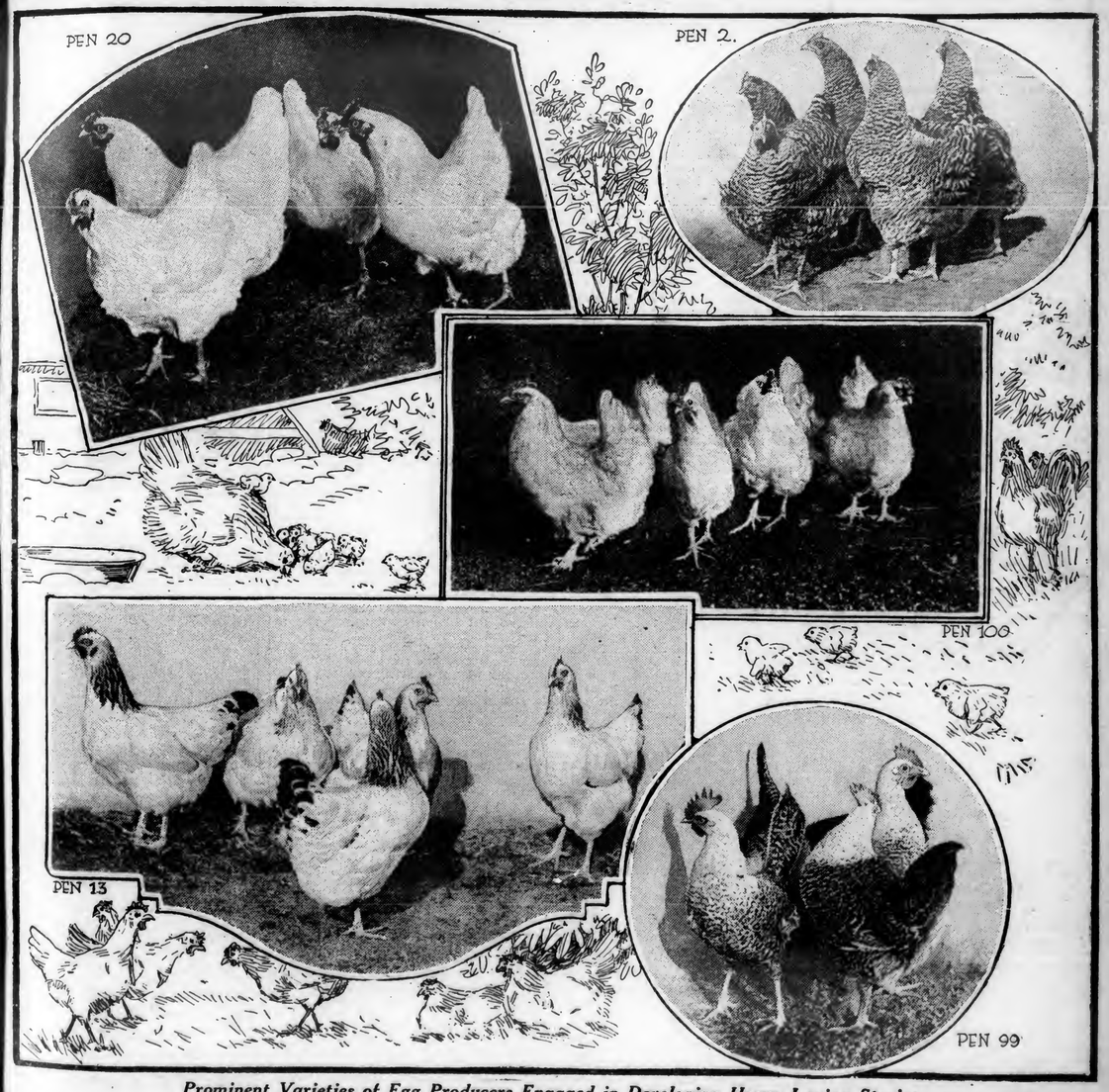

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CHAPTER V.

DIANTHA GROWS UP.—Continued.

For a long half minute they stood without speaking. "Oh, good afternoon," Diantha said at last, and veiled her eyes from his fascinated stare. Formerly she had treated him with the free-and-easy pertness of a precocious child. Now the exquisite shyness of maidenhood enveloped her. Instinct drew her back from the man's inevitable advance. "I didn't know it was so late," she said to Persis, oblivious to Thad's gasping greeting. "I must hurry."

Thad's sense of confusion was like a physical dizziness. This regal young beauty was the daughter of the woman whose hand he had held surreptitiously the previous evening. With an effort he steadied himself, only to make the discovery that in that hazy moment the world had undergone a process of readjustment. He knew as well as he was ever to know it, that Annabel Sinclair belonged to another generation from his own.

"I suppose you want to take this along." Persis' gesture indicated the package containing the discarded serge which Diantha would have been glad to contribute to the wardrobe of the youthful Trotters. But with all her daring, her courage was hardly equal to such a step. She put out her hand for the package, but Thad had already pounced upon it.

"I—I'm going your way," he said, a trace of his recent disorder in his stammering speech. "I'll carry it for you."

Silently Diantha accepted the offer. She kissed Persis good-by in a fashion which the critical might have pronounced needlessly provocative, though her dreamy eyes protested that nothing was further from her maiden thoughts than the presence of Thad West. Persis, who was intensely alive to every phase of the dramatic situation, had caught a glimpse of the young fellow's face during the affectionate leave-taking and was abundantly satisfied.

"Thad's no fool, though he's acted like the twin brother to an idiot. He can't help seeing that the mother of a grown-up girl like Diantha hadn't ought t· be flirting with a boy like him. If he doesn't see it now he will before he gets her home, or I miss my guess."

Mr. and Mrs. Stanley Sinclair were seated side by side on their front porch, presenting an agreeable picture of domesticity. The reason for Annabel's presence was that the ten " singer of the Unitarian choir was accustomed to pass the house at that hour. Sinclair stayed on simply because he suspected that his wife wished him indoors. He read aloud inane items of village news from the weekly paper, and only the veiled mockery of his eyes betrayed the fact that he was not the most devoted and the most complacent of husbands.

As the two young people came into view, Annabel's air of indifferent listlessness changed to rigid attention. She recognized the gallant figure of the young man considerably before she knew his graceful companion. Her husband's eyes were quicker. His paper dropped from his hand, and his emotions found vent in an explosive and needlessly profane monosyllable.

The two culprits came up the walk, Thad with a fine color, Diantha extraordinarily self-possessed. The girl's eyes rested on her mother's face, then went in swift appeal to her father's. Their consternation was too obvious to be ignored.

"I wore my new dress home," she remarked casually. Then with sudden recklessness: "Do you like it?"

"It's—it's absurd," pronounced Annabel almost with a snarl. So a mother tigress might have corrected her offspring. Never had she seemed less prepossessing to her youthful adorer than at that moment. Anger aged her indescribably. The young man looked at her and dropped his eyes ashamed.

"It's no longer than other girls of sixteen are wearing," said Diantha, and turned to Thad. "Thank you for carrying my bundle." She took the package and vanished. Nothing in her outward composure indicated that her heart was thumping, and girlhood's ready tears burning under her drooping lids.

Persis' device had been eminently successful, entailing consequences, indeed, she was far from anticipating. For Stanley Sinclair had waked to the fact that he was the father of a beautiful girl on the verge of womanhood, and his sense of parental responsibility, long before drugged, manacled and locked in a dark cell, had aroused at last and was clamoring to be free from its prison. Annabel, his wife, had recognized a possible rival in her own household. And lastly, Thad West was the prey of an uneasy suspicion that perhaps, after all, the mother of Diantha Sinclair had been making a fool of him.

CHAPTER VI.

THE NEW ARRIVAL.

Mindful of her promise to Mrs. Trotter, Persis had looked through her piecebag apparently with excellent results. For the little garments symbolic of humanity's tenderest hopes, the garments that are to clothe the unborn child, were growing rapidly under her skillful fingers.

The first slip had been severely plain, and then Persis, yielding to a temptation most women will understand, began to fashion scraps of embroidery and odds and ends of lace and insertion into tiny yokes and bands. After many a long day's work she sat by the shaded lamp finishing the diminutive garments with stitches worthy of a bridal outfit.

"Who is it that's expecting?" Joel demanded one evening, his sex not proving an impregnable armor against the assaults of curiosity.

The brevity of Persis' answer indicated reluctance to impart the desired information. "Mis' Trotter."

"Bartholomew Trotter's wife? And of course she's going to pay you for all this fiddling and folderol."

Persis accepted the implied rebuke meekly.

"I guess I'm paying myself in the satisfaction I get out of it. I started in to stitch up some slips on the machine, but I just couldn't stand it. Machine sewing's all right for grown folks, but it does seem that when a little child's getting ready to come into the world, there'd ought to be a needle weaving back and forth, and tender thoughts and hopes weaving along with it. And especially if a baby's going to be born into a home like the Trotters', you can't grudge it a little bit of beauty to start out with."

"Well, I must say it's lucky that so far you women have been kept where you belong. Weaving hopes, indeed! As if 'twould make any difference to that young one of Trotter's whether it was rigged out like a millionaire baby or wrapped up in a horse blanket."

Persis sewed on unmoved. "I don't say the baby'd know the difference. It's just my way of showing respect for the human race."

Her industry was not premature. One Saturday night she carried to the Trotters' squalid home a daintily fashioned, freshly laundered outfit which took Mrs. Trotter's restrained and self-respecting gratitude quite by storm. Forgetting for once the public obligation to provide for the needs of her family, present and to come, she accepted the gift in a silence vastly more eloquent than her usual volubility. Then the muscles of her scrawny throat twitched, and a tear splashed down on the soft cambric. Nor did she, during the interview, recover her usual poise sufficiently to refer to the obligation under which Bartholomew and herself were placing the community; and Persis returned home in a mood of even more than her customary tolerance.

That was Saturday night. Early Monday morning little Benny brought word that his mother was sick and wanted Miss Persis to come right away. Joel had not risen, and Persis scrawled a hasty note explaining her abrupt departure and set out for the Trotter establishment, stopping on the way to ask a favor of Susan Fitzgerald.

Susan was finishing her early breakfast, her hair still wound about her crimping pins, the painfully strained

(Continued on page 82)

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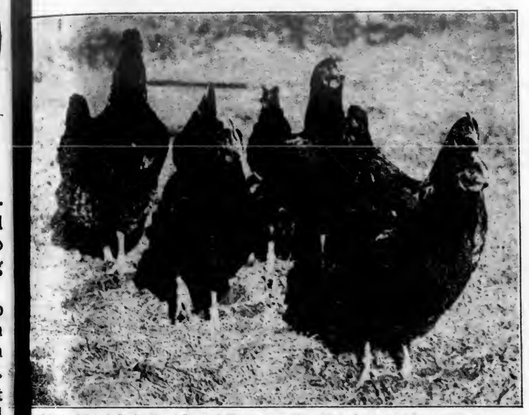
FIRST PRIZE ARTICLE

Feeding Fresh Air and Reaping Eggs

By ROBERT B. HANFORD

OW many of your neighbors who house their chickens are careful to see that the fowls have plentiful supply of oxygen? Few, you will admit. rhaps even you, yourself, are not as careful as you uld be. But based on the experience of the writer, gen is a prime essential to winter egg production. There are hundreds of farms where the flocks are



Rhode Island Reds Have Proved Themselves Good Egg Layers in Recent Contests and are Gaining in Popularity

used in well-constructed houses, facing the south d free from drafts, and yet fresh air is not permitted ample quantities to reach the chickens day and ght. Go into your own or your neighbors' hen uses early in the morning, or, in fact, any time ring the day when the weather conditions are such t the fowls are better in than out, and you will be eted by a stench that would make a turkey buzzard ulder, and yet you wonder why your hens don't lay. ygen is the reason, and the lack of it the cause.

Granting that the fowl is supplied with the proper ount of fresh, clean water, a well-balanced egg proing ration, the harvest of winter eggs will be lack- if they are not supplied at the same time—and all time—with fresh air.

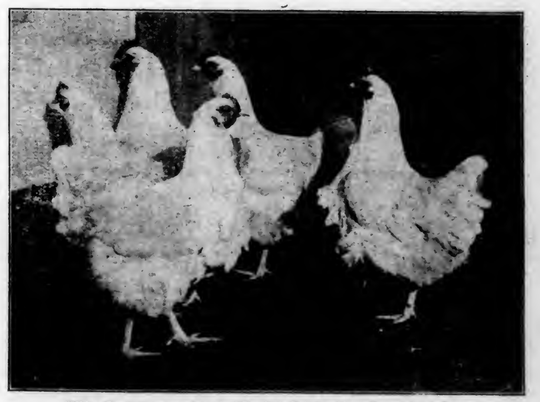
A year ago when the writer took possession of his sent farm one of the first tasks was to take out all glass in the windows on the south side of what s then the only chicken house on the place. When neighbors smiled and chaffed about the "new fel- 's fool methods," the writer merely pointed to ir foul-smelling houses and to the birds which went roost on the trees no matter what the weather, in ference to the "warm houses" provided for them the cold-fearing farmer.

lthough handicapped by road conditions which vented hauling until later in the spring, and lack- all the proper ingredients to maintain a well-bal- ed ration, by keeping charcoal, shell and grit be- e the hens at all times, providing plenty of fresh, n water, occasional feedings of sprouted oats, amed wheat and oats—this served steaming hot hat the hen will stand around it waiting for it to ome cool enough to eat—in something over a fort- ht the "fool farmer" was gathering eggs from his ll flock far in excess of any of his neighbors with ir flocks three and four times as large. But—"it coming spring and the birds were pure Leghorns" from the south. Perfect ventilation was further assured by leaving a small space—about 2 inches—at the top of the front wall under the projecting roof, the roof projecting 1½ feet in front and 1 foot at the rear.

In view of the fact that the farmers in my particular section believe that the chicken must be kept warm at all hazards, it is not surprising that many and frequent have been the comments and warnings against this open-front house. One farmer not far distant proudly displays a wonderful new heating system recently installed at considerable expense in his poultry house, and openly ridicules the "man with the cold-air chicken house"—but takes it out in ridicule while the "cold-air man" goes on his way gathering eggs.

Any one contemplating the building of a new house for his flock should remember that a chicken is clothed with the warmest clothing nature provides for any of our domestic animals, and that a tight-walled house with an open front works on the principal of a bottle. Try blowing into one and you will understand—it can't be done—and the cold air finds it just as difficult to rush into a house built on the lines above.

Another kink used on my farm that could profitably be used by enterprising, thinking farmers, is the abolition of the droppings-boards. These boards came strongly in favor some fifteen years ago, due, to a great extent, to the demand from florists, etc., who wanted the droppings in the pure state. There are few farmers today who are selling these droppings, most farmers preferring to use them on their own gardens. If they are to be so used, why not have them in the form best adapted for the land? That is, mixed with straw which will take up and hold the valuable ammonia and poatsh contents. For all practical purposes the droppings-boards are both unnecessary and wasteful. Straw spread on the ground under the roosts will take up and hold the manure in a manner most beneficial to the farmer. Aside from the benefit the farmer derives from the hen manure thus saved, there is an actual beneficial effect on the chickens. A great many of the farmers in this section stand strongly by the droppings-boards which they have put up at some trouble and some expense, but though they are all willing to agree that these droppings lying so close to the chickens must be cleaned off frequently—at least every other day—they are equally as frank to confess that once a week is more often the case, and sometimes they are too busy to tend to it then. Twelve hours of the twenty-four their hens are obliged to sit over a vile-smelling board within a few inches of their roosts, breathing in the foul odors. Unless you can conscientiously say that you really need the droppings in their pure state and that you are scrupulously careful to clean the boards every other day, the wisest move you can make is to remove without delay the over-praised droppings-boards, partition off by the simple use of four or six boards that part of the ground or floor under the roosts, and place a goodly supply of small straw in this section. If your houses are well ventilated with a good supply of fresh air at all hours of the day and night it will not be necessary to clean up the manure oftener than once a month, and even then you will find no odor or stench which usually prevails where there are droppings-boards in use.



White Orpingtons—a Breed of English Origin—Have Found High Favor Here as a Meat Chicken

Feed your chickens with clean food and common sense. Give them the same kind of care, that is care mixed well with common sense. See that they have plenty of beef or fish scraps, grit, charcoal and oyster shell, and you will be rewarded with a return in eggs

(Continued on page 73)

TIGHT BINDING TEXT CUT OFF

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EDITORS

THOS. H. WITTKORN W. F. MASSEY W. H. TOMHAVE
A. E. GRANTHAM CHARLES A. McCUE
F. V. L. TURNER J. H. REED
EDWARD T. WALKER, Managing Editor

SPECIAL REPRESENTATIVES

J. C. Billingslea, 119-123 W. Madison St., Chicago.
708 Kresge Bldg., Detroit, Mich.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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FEBRUARY 15, 1917

Is the Tide About to Turn?

PRODUCE prices in the city markets have reached remarkable heights, and all indications are that they will go higher for at least a while longer. Potatoes at $3.00 a bushel, and cabbage 10 cents a pound, two of the workingman's staples, are but examples of the general level of fruit, meats and vegetables. Farmers as a class have plenty of food for themselves, and while there might not be a surplus to sell, we do not worry much about the "high cost of living." We are under no moral or legal obligation to feed the cities, as we know when hunger hits hard enough there is room and opportunity for more in the country to grow a living as we do.

Seedsmen tell us that as a rule when prosperity is general, demand for seeds is slack, but when hard times come demand for seeds is heavy. This year proves the exception in that, while prosperity is abundant and wages high, living cos's have advanced faster, and now thousands want to raise things to make both ends meet. The vacant lot association in Philadelphia already has applicants for all the ground which it has available this year for vegetable growing. Poultry supply houses and breeders report an unusual demand, real estate dealers are counting on a heavy spring exodus to country and suburbs. Lots of those who left the country last year for high wages in town are finding that it is not wages received but what is left after deducting living expenses that counts in the long run.

The general attitude of city people toward this great problem is well expressed in a publication which is issued by one of the leading Philadelphia banks, as follows:

"City people complain of the rising cost of meat, eggs, butter, milk, vegetables, apples and other staples, but the reason for the steadily advancing prices is the very simple fact that our farms do not increase their output nearly so fast as the number of consumers increase. * * * * * What is the answer? Better farming. * * * * * Better farming is a city question even more than a rural question, because it is the cities that must pay more and more for what they consume. Scarcity of any desirable commodity inevitably enhances the value of that commodity. On the other hand, a plentiful supply of any commodity tends to keep the price down to reasonable proportions. When the farm begins to pay the farmer twice what it pays him now, he won't dream of leaving it. And when it pays twice as well by producing twice as much, the city consumer will receive his reward, by being able to supply his dinner table for less money."

In reply to this we say, food is high in the cities because it is scarce in the country. It is scarce because we farmers had not sufficient help to plant and harvest the crops. We farmers know how to do better but do not believe that by doubling our yields we will make twice as much, nor are we justified in working sixteen hours merely to make food a little cheaper for the man who will only work eight hours. If the city people will come out and help us we can raise enough food for everybody and prices will adjust themselves so that we will all be prosperous.

Plant After Testing, not Guessing

IT is well enough to have faith that "seed time and harvest shall never fail," but to accept all seed on faith will often mean a scanty harvest. Good seed is the main requisite for a good crop, yet how often is it planted merely because it looks good. Of all farm crops, possibly corn, of late years, has had the greatest attention given to seed selection and testing. Undoubtedly because the work is easy and results are quickly seen. One of the agricultural colleges has recently figured that time spent for this work is worth $4.00 an hour. How it is done and with what results are told by our contributors to the Experience Pool in this issue.

If good seed is profitable for an annual crop such as corn, why is it not a great deal more so for grass and forage crops which are expected to remain productive for several years. Alfalfa, for instance, might be counted on for thirty cuttings, but if the seed contained over 400,000 weed seeds per bushel, as has been found in some samples, it would be worse than lost time in planting it. Timothy and clover seed are subject to a still greater number of foreign seeds and as most farmers have enough weeds without buying more, care should be taken in selecting pure seeds for planting.

Trueness to name and the value of a strain of seeds cannot be told, in many instances, until the crops mature. In the case of some vegetable seeds, for this reason, it has been found advantageous to purchase the seed supply a year in advance and to make a preliminary test before it is necessary to use the seed for the main planting. Pennsylvania State College found, by careful experiments, that there was a difference in yield from three to fourteen tons per acre of cabbage, between seed of the same variety secured from different sources. Careful saving of home grown seed from known desirable plants will go a long way toward solving this problem for gardeners.

Although twenty-six states have passed laws regulating the sale of seeds, there is practically no legal guarantee of quality required on seeds sold from one state to another. Of late years some commercial seedsmen have started to mark each package not only with the purity of the seed, but with the vitality percentage. Where this is not done, or even where the purchaser wants to prove the vitality for himself, the only sure way is to ask dealers for samples of farm seeds for testing and then plant and buy by test, not guess.

Help Yourself by Helping Here

THE bi-ennial opportunity has arrived when the farmers of Pennsylvania can do a little real work in expressing their approval of the good being accomplished by their State College. The Pennsylvania Legislature is now in session and possibly before this issue of The Practical Farmer reaches you, the appropriation bill which will provide funds for the college for two years from next July 1st, will have been introduced. This will call for approximately $3,000,000 for buildings, maintenance and extension work not only for the school of agriculture, but for all of the schools in the college.

Every visitor to the college cannot fail to be impressed with the inadequacy of buildings and equipment for some of the departments. When one considers the wealth of the state and then compares what other states of far less importance spend each year for the development of agriculture it hardly seems possible that we are living in a commonwealth where other industries have reached their highest degree of efficiency. California, for instance, a far poorer state, spends each year about seven times as much as we do in teaching its youth how to extract wealth from the soil.

Research or experimental work is the basis of an educational institution. Unless new facts and methods are constantly being developed the worth of a college rapidly passes to the background. In the amount of state appropriations for this work in 1916 Pennsylvania was surpassed by twenty-four other states. Ohio led the list with over $282,000, followed by Illinois, Minnesota and California. In the budget prepared for the fiscal year beginning July 1, 1917, only $50,000 is asked for experimental work in agriculture at Pennsylvania State College.

Statistics tell us that there are about 250,000 farmers in Pennsylvania. Can you realize what it would mean if within the next week each one of these would write to their senator and representative and tell them what to do regarding this appropriation bill for State College? In fact, the farmers ought to have a lot of friends who would be glad to bring a little pressure to bear on their representatives at this time. These men at Harrisburg are only human and if nobody except those connected with the college seem to care what happens to this bill they are more than likely to slight it and give their attention and vote to other things in which we are not so vitally interested.

Just a Little "Family Matter"

EVERY little while we receive by mail a thorough scolding from some one of our readers—a member of "The Practical Farmer family"—because he or she has not received an answer to some inquiry made from us, or because an address has not been changed as requested, or because a remittance to cover a renewal of subscription has not been promptly credited—and when we look the matter up we find that the writer's original letter—the letter we are being scolded for not giving attention to—bore no address at all—and occasionally we even have one which is not signed!

We make mistakes—everybody does—and we sometimes deserve the scoldings we receive; but it is a little galling to be scolded for faults that are really the scolder's own. Still this little editorial is not in the nature of a complaint—the idea is to call the attention of the members of our "family" to the annoyance and losses they cause *themselves* by carelessness in the matter of correspondence.

Business men in town, whose lives are one daily grind of correspondence, make occasional mistakes in addresses and the like which cost them money; but the farmer, with whom correspondence is a minor matter, makes more mistakes proportionately, and it behooves him to re-read every letter before he mails it, to see that his letters are signed and full address clearly given.

We have in our files now three letters from a certain man—the first a simple request, the second a remonstrance because the first brought no response, and the third a disgusted call-down because of our apparently utter neglect of him—and not one of the three gives any address, nor was the postmark on any of the envelopes legible (a frequent fault of country postoffices); we are still waiting to know where we are to address this angry correspondent! We often receive a dollar bill in a letter to pay for the subscription of a writer who either gives no address or fails to sign his name; in such cases we can only wait for a complaint to give us the necessary information. We frequently receive unsealed envelopes from which the contents—money, stamps, etc.—have been lost—more carelessness.

What a heap of trouble, disappointment—and sometimes money—a little carefulness and thoughtfulness would save!

Turn Uncertainty into Certainty

THE benefits of life insurance have not been appreciated as they should be by farmers. The whole subject is more or less of a mystery to the average citizen, but it should be of vital interest to every man, woman and child. While there is only a possibility of our material resources being destroyed, and we generally insure against this risk, it is a certainty that sooner or later all of us must meet death. At such a suggestion some people throw up their hands in horror and refuse, as they call it, to "gamble" on such a sacred subject. Nevertheless it is a fact that in Pennsylvania alone during 1915 there were in force 5,780,175 life insurance policies which had a value of $2,197,357,870.56.

What proportion of this number was carried by people on the farms we cannot state, but that the proportion is growing each year in their favor is an encouraging sign. Modern policies have so many features which take them out of the old class of having "to die to win" that the business farmer cannot get along without them. Even a straight life policy is a blessing to wife and children when the unexpected happens. If you cannot now make enough to meet the permiums how will they get along when you leave?

SECOND PRIZE ARTICLE

A New Jersey Woman's Experience With Turkeys

FLORA M. TUCKER

If one would be a successful turkey raiser he or she (and it is usually she) must keep up a livelier "turkey trot" than was ever danced in the cafes of New York. It is not an avocation for the lover of a hammock or rocking chair. There may be localities in the far West or down in Texas where turkeys raise themselves, but not in Jersey. Nor can one do any "watchful waiting," nor be "too proud to fight" turkey foes first, last and all the time.

The first step toward success is strong, hardy, good sized stock. Never buy a turkey because it is cheap. Go down as deep into your purse as you dare, to get the best pair or trio, or the finest sitting of eggs, for as has often been said, "It costs no more to feed fine birds than mongrels." Good stock pays not only in cash, but also in the pleasure it gives one simply to look at them. A purchaser said, in buying one of my birds, "I want him as an ornament to my lawn."

Having secured your birds, give them a good sized, airy, sunny house on a well drained location. Keep their quarters clean and free from vermin with lime-sifted coal ashes and a good disinfectant. If the turkeys prefer the highest ridge pole of your highest barn as a roosting place, do not leave them there. "Shoo" them down and make them go into their house. A sudden gale such as we often have in central New Jersey, has sometimes dislodged the lofty perches with disastrous effects. In locating your turkeys isolate them as completely as possible from any other variety of poultry. It is generally conceded that turkeys contract liver trouble or blackhead from hens.

When I first began with turkeys eight years ago I put my pair right in the same house with my hens, with the result that I raised one bird. I was a veritable tyro at the business. I had never seen a baby turkey, and when the first one peeped out from under the mother hen I called the family to see the beautiful, big-eyed chick.

Although I was taking more than twenty farm papers and poultry journals I could find little or nothing about turkeys in them. Experience was my teacher. "Experience is bitter, but its teachings we retain." Now, however, I have to aid me books, pamphlets and personal letters from successful turkey raisers and from men of science who are studying how to combat the turkey's worst enemy, the deadly blackhead.

I have learned never to in-breed. It takes nerve and money never to break that law, but the little poult needs all the backing that strong, non-related parents can give him to win his way to maturity. Ex-President Roosevelt is said to have won his way from puny childhood to sturdy manhood by fresh air, exercise and hygienic living, but do not expect such feats from feeble baby turks.

I try to set a turkey and one or two hens on turkey eggs at the same time, giving the poults all to the turkey when hatched. Even if one did not fear contamination by having the poults run with a hen mother, she is too active, too fussy, rushing here, rushing there, tiring the babies out, while a turkey mother is slow moving and placid and stands many minutes at a time with head cocked on one side gazing at the sky, looking possibly for hawks, though she seems to be wondering about the weather. Meanwhile the little ones chase the bugs and flies.

There is a diversity of opinion concerning the proper feed for newly hatched turkeys. I have never seen the answer to the question, "Who shall decide when doctors disagree?" but when turkey raisers disagree the only thing to do is for each to be a law unto himself. For example, one says, "Feed hard-boiled egg and bread soaked in sweet milk and squeezed dry, giving sour milk to drink." The next advises soft-boiled eggs with corn bread and sweet milk as a drink. A New England woman who has won fame as a successful turkey breeder, advises this: "Give the babies common sting nettle chopped fine with hard-boiled egg and a dash of red pepper." The sting nettle suggestion reminds me of a receipt for cooking a hare—"first catch your hare." So before feeding sting nettle one must get it. But where? It appears to grow plentifully in Puritanic soil. In fact, Massachusetts' stern and rock bound coast seems an appropriate home for nettles, but not little Jersey, so suggestive of peaches and cream. I have not been able to find it here, nor has the State Agricultural College been able to render much help. However, I feed hard-boiled egg, bread and milk with chopped lettuce or onion tops sprinkled with pepper. It is surprising to see how much red pepper a turkey will eat with seeming relish. Give the poults milk and water to drink, being careful to so arrange the drinking vessel that the birds cannot get wet. Never overfeed turkeys, young or old.

When the turkeys are a week old, if the weather is dry and warm, let the mother take the birds for a stroll, but see that she returns with them at night.

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A Doubled Output to Meet a New Demand

Thousands of men have wanted a car with all the Mitchell extra features. But they did not want a car so big and impressive. They did not want a 7-passenger car.

We have built for them the Mitchell Junior—a Mitchell Six in little smaller size. Its 40 horsepower is ample for five passengers. Its 120-inch wheelbase gives plenty of room for five—more than most makers give.

The $1150 price gives all of the saving to the man who doesn't want extra power and size.

Last year we sent out thousands of these cars before announcing this new model. And Mitchell Junior has proved itself as perfect as the larger Mitchell. So we have more than doubled our factory capacity, to build as many Mitchell Juniors as we build of the 7-passenger Mitchells.

Hundreds of Extras

Both of the Mitchells embody hundreds of extras, paid for by factory savings. They give you at least 20 per cent extra value over other cars in their class. All because John W. Bate, the great efficiency expert, has cut our factory costs in two.

There are 31 extra features—things which other cars omit. On this year's output these extras alone will cost us about $4,000,000.

There is much added luxury. We have added 24 per cent to the cost of finish, upholstery and trimming. That is all paid for by savings made this year in our new body plant.

And there is now 100 per cent overstrength in every vital part. That is, every part is twice as strong as need be. The evidence is that this double strength makes the Mitchell a lifetime car.

Twice as Strong

The Mitchell standard for many years has been 50 per cent overstrength. Under that standard Mitchell cars have proved marvels of endurance.

Two Mitchells that we know of already have exceeded 200,000 miles each. Seven of them have averaged 175,000 miles each—over 30 years of ordinary service.

But in 1913 Mr. Bate spent a year in Europe. When he came back he started out to double our margins of safety—to more than match the highest European standards.

It has taken years to do this. But we announce this year this double strength in every vital part.

Over 440 parts are built of toughened steel. All parts which get a major strain are built of Chrome-Vanadium. We use steel alloys which cost us up to 15 cents per pound. And all the parts on which safety depends are made oversize.

One result shows in the Bate cantilever springs. We have used them for two years, on thousands of cars. And not one spring has broken.

That one fact will illustrate what this extra strength means in every vital part. For you know how springs break under shock.

Exclusive Values

These extra values are exclusive to Mitchell cars. No other factory in the world could include them at the Mitchell price.

This model plant, covering 45 acres, was built and equipped by John W. Bate. Every machine is adapted to build this one type economically. The methods employed here have cut our factory cost in two.

That is what pays for these extras. That is what pays for this vast overstrength.

Now a new body plant—building all Mitchell bodies—saves us a vast sum more. That goes into luxury—into heat-fixed finish, into rare-grade leather, into countless dainty details. The latest Mitchells are the handsomest cars under $2000.

Go see these extras, which are numbered by the hundreds. See what they mean in a car. You will not want a fine car which lacks them.

There are Mitchell dealers everywhere. If you don't know the nearest, ask us for his name.

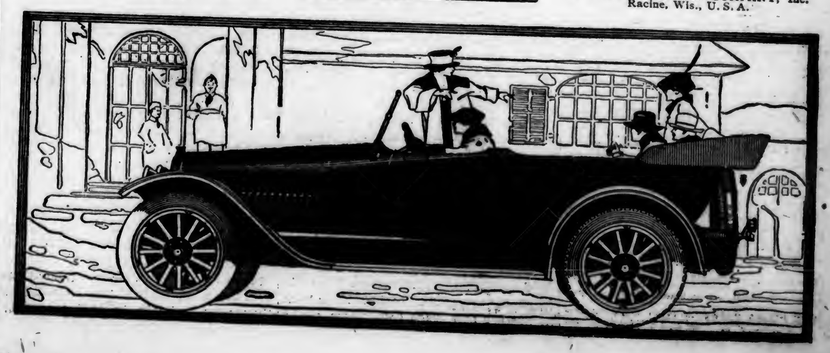
MITCHELL MOTORS COMPANY, Inc.
Racine, Wis., U. S. A.

TWO SIZES

Mitchell—a roomy, 7-passenger Six, with 127-inch wheelbase. A high-speed, economical, 48-horsepower motor. Disappearing extra seats and 31 extra features included.
Price $1460, f. o. b. Racine

Mitchell Junior—a 5-passenger Six on similar lines with 120-inch wheelbase. A 40-horsepower motor—¼-inch smaller bore than larger Mitchell.
Price $1150, f. o. b. Racine

Also all styles of enclosed and convertible bodies. Also demountable tops.



"Eglantine" White Leghorn Cockerels $5

Big, healthy birds that will surely produce heavy-laying daughters. From the strain that produced "Queen Caroline," with a record of 310 eggs in 24 consecutive months, and the holder of the world's official record—

"Lady Eglantine" 314 Eggs in 365 Days

49 Eglantine pullets laid 11,007 eggs in one year, an average of 224 each.
At little cost you can put this bred-to-lay blood in your flock through the male, the most effective way.
Matings based upon accurate trap-nest records—our standards are exacting. Eglantine Cockerels will please you in every way.
Cockerel list FREE—Write
EGLANTINE FARMS
Box P Greensboro, Maryland

CHICKS that pay
Well hatched, well bred, from best heavy-egg strains of Reds, Rocks, Leghorns, Wyandottes, Cochins, etc. FREE BOOK tells how to make more money from poultry.
W. F. HILLPOT, Box 4, Frenchtown, N. J.

GEESE AND DUCKS.—Largest collection in the U. S. 500 head for sale. Large, vigorous farm grown, selected breeders, reasonable prices. Toulouse, Embdens, Brown Chinese, Africans. Ducks—Pekin, Rouen, Aylesburys, Colored Muscovys, White Muscovys, Cayugas, Indian Runners, Buffs and Calls. Every farmer should grow geese and ducks. They are money makers for you. Write today.
Chas. McClave, Box 5, New London, Ohio.

S. C. White Leghorns
Eggs for hatching, $6.00 per 100.
CHESTERBROOK FARMS, Berwyn, Pa.

FOY'S BIG BOOK FREE
POULTRY AND SQUABS FOR PROFIT. An encyclopedia of poultry information. Written by a man who knows. Leading varieties of poultry and pigeons in natural colors. Low prices on fowls and eggs.
Frank Foy Poultry Farm, Box 69 Clinton, Iowa

Barred Rocks, White and Golden Wyandotte, Light Brahmas, Leghorns, Langshans, and Orpingtons. Farm grown healthy, vigorous stock. Price quality, reasonable prices. 500 head for sale. Buy your stock from a veteran breeder. Write today.
Chas. McClave, Box 5, New London, Ohio.

QUALITY CHICKS and eggs from our blue ribbon winners. They lay, win and pay. Orders booked for spring delivery, seven varieties, circular free. E. R. Hummer & Co., R. D. 8, Frenchtown, N. J.

TIFFANY'S Superior Chicks That Live Silver, White and Columbian Wyandottes, S. C. R. I. Reds, $18.00 per 100; $165 per 1000. Pekin and Rouen ducklings, 30 cents each; $25 per 100. Catalogue.
Aldham Poultry Farm, R. 35, Phoenixville, Pa.

Sunshine Strain Single Comb **White Leghorns** are sure to please. Twelve hundred breeders. Records up to 258. 2,500 chicks every week. Write for circular. Satisfaction guaranteed. Sunshine Poultry Farm, Ridgely, Md.

Giant Strain Bronze Turkeys. From "Hugo King" 45 lb. yearling and Md. Sq. Garden winners. Massive youngsters. Big Buff P. Rock Ckls. J. C. Clipp, Box P, Saltillo, Ind.

Bronze, Narragansett, White Holland, Bourbon Red, black and slate breeding turkeys for sale. From the finest flocks in America. Winners at the leading shows. Special prices. Write F. A. Clark, Freeport, O.

CHICKS Eggs and Breeding Stock. All Leading Varieties. Order now. Safe arrival guaranteed. Booklet free.
Houck Hatcheries, Box 20, Tiffin, Ohio.

FOR SALE. Pairs, trios, pens; all varieties. Rocks, Reds, Wyandottes, Leghorns, Orpingtons, Andalusians, Campines, Hamburgs, turkeys, ducks and geese. Prices low. RALPH H. BANY, R. 6, Millersburg, O.

EGGS from best 20 varieties thoroughbred poultry. Rocks, Wyan., Reds, Orp., Leg., Min., Brah., Ham., Anc., Hou., 15 eggs, $1.00; 50, $3.00; 100, $5.00. Catalog free. H. K. MOHR, Quakertown, Pa.

Mammoth Bronze Turkey Eggs Large, Vigorous, beautifully bronzed strain. Bred in the Adirondack Mountains. Prices low. Booking orders now. North Woods Farm, R.1, Johnsburg, N.Y.

Superb Ringlet Barred Rocks and pullets for sale from best blood, also eggs. Money back guarantee. Catalog free. Write today. Dept. 5, John W. Hall, Marion Sta., Md.

CHEAP, STOCK AND EGGS Stock, $2.00, eggs, $1.00 per 15 up. R. C. Reds, R. C. Brown Leghorns, B. P. Rock, S. C. W. Leghorns, S. C. B. Minorcas. Joseph Miller, Lickdale, Pa.

EGGS, 15, $1; 40, $2. Thoroughbred Rocks, Wyandottes, Reds, Leghorns, Hamburgs, 19 varieties. Catalogue. W. Orpingtons, Houdans, Campines, Light Brahmas, 13, $1; 30, $2. S. K. Mohr, Coopersburg, Pa.

Pencilled Runner Drakes, $2.50. Golden Fawn ducks. Prize stock. Both varieties. Grand exhibition strain. White eggs. Wilcox's, Sandy Knoll, West Danby, N.Y.

Bryan's Lt. Brahmas, "Jumbo Strain," have the laying habit. Established 15 yrs. Farm raised stock for sale. Guarantee satisfaction. DAN BRYAN, Portland, Ind.

White Wyandottes. Great winter layers; hatching eggs, $1.25 per 15. Also Toulouse goose eggs, 30c each. John S. Brenneman, Dept. 3, Lancaster, R. 7, Pa.

ROSE COMB RED AND WHITE ROCK chicks and eggs. **Custom Hatching** our specialty. E. M. CLYMER, Box F, Olney, Phila.

MOTTLED ANCONAS Bluebell strain. Cockerels, hatching eggs and baby chicks. Geo. H. Rowdish, Esperance, N. Y.

60 VARIETIES. Chickens, ducks, geese, turkeys, guineas. Stock and eggs. 60-cut catalogue free. EDWIN A. SOUDER, Telford, Pa.

90 Varieties. Poultry, pigeons, dogs, ferrets, guinea pigs, hares etc., folder free. Colored descriptive 60-page book—10c. Bergey's Pet Farm, Telford, Pa.

WHITE CHINA GEESE M. Pekin ducks and Rose Comb Brown Leghorns.
Mrs. Claudia Betts, Hillsdale, Mich.

My turkeys, with sometimes one or two exceptions, can be depended on to come home about four o'clock. If there were no marauders to fear, such as dogs, skunks, hawks and two-legged thieves, I would let the turkey mothers, with their flocks, live afield through June, July and August; but such favorable conditions are not mine, so I see each mother and brood securely housed at night.

I keep a dry turkey mash before my turkeys after they are three days old until they are sold or otherwise disposed of; also grit, charcoal, oyster shell, sifted coal ashes and a combination of lime and sand mixed soft with water and then dried. During the summer I feed very little grain, as turkeys even on a small range feed themselves to a great extent.

My flock of beautiful White Hollands has a 40-pound prize gobbler as major domo. The hens are large prize winners and their progeny show their fine ancestry.

My expenses for the year are:

Feed	$20.29
New stock	35 00
Advertising, expressage, etc..	5.83
Total,	$61.12

RECEIPTS.

Birds sold	$97.58
Eggs sold	55.90
Total,	$153.48
Expense,	61.12
Gain,	$92.36

There are many discouragements in turkey raising and one will do well to remember the old adage, "If at first you don't succeed, try, try again."

New Jersey.

THIRD PRIZE ARTICLE

Care of the Chick from Birth to Maturity

BELLE BARKER

It is easy to hatch chickens, but the next thing is to raise them. I have had seven years experience hatching chicks in an incubator, for sale and for myself through the spring hatching season, but I have had a lifetime of experience in the care of chicks, since I was called "chicken tamer" when a baby of four. I have learned a great deal and know I can still find more to learn. I like to read other people's ideas and hope I can suggest a few that may benefit others.

My care of the baby chick begins long before the egg is laid—when the fowls that are to produce the egg are mated. Only the choicest fowls, the cream of the flock, should be used for breeding. The pure-blood stock is the kind that pays. As a general rule, they are sturdier, as they have generations of good care and weeding out of culls back of them. They lay eggs of a more uniform size and color and present a finer appearance to the eye. I do not have painted hen houses or gilt-edged coops. I have only a small flock of hens—about 60, but they are pure-bred White Leghorns. I never do any in-breeding. I am extravagant in only two things—the best care I can give, and poultry reading matter. My fowls show their keeping and they produce the egg that produces the healthy chick. I am proud of the compliments I receive on the appearance of my flock. I am proud of the reputation I have won for the sturdiness and rapid growth of the baby chicks I sell—a hard-earned reputation but a very desirable one nevertheless, as it is one that enables me to earn a nice sum of spending money every spring, and raise a nice flock for myself, besides doing my regular house work.

For hatching I select eggs of medium size without spot or blemish. I do not let them chill before or after gathering, and keep them at a temperature of about 50 degrees, turning them every day until they are placed in the incubator, and the same care should be used if set under hens. The turning prevents the yolk of the egg from adhering to the shell, which is one cause of cripples in incubator hatches.

When the chicks are all out of the shell and down in the nursery I remove the tray and begin to turn down the lamp flame gradually until it is completely extinguished, letting the chicks become accustomed to cooler air by degrees. I usually let them remain in the incubator about half a day for this drying off, and when I take them out a fluffier, livelier bunch of chicks would be hard to find. I remove them from the incubator to boxes or baskets lined with newspaper and place soft, warm cloths over their backs and set by kitchen stove or on lighted incubator. I do not feed them anything for the first thirty-six hours, as nature supplies a young chick with food for that period and any other food it may consume is liable to cause bowel trouble. I give them fresh, clean water first. The first food is dry rolled oats. Some feed pinhead oat meal, but I prefer the flakes, as the chicks like to pick them to pieces. It amuses them and gives them exercise. The first feeding day I also give them hard-boiled eggs mashed fine with a fork, with fine sand stirred through it, and also finely shredded lettuce, clover, or dandelion leaves. I save the infertile eggs that test out of the incubator, to feed the chicks. From the very first feeding until they are three months old I keep a dry growing mash in a hopper before them constantly. Therefore I know they are never hungry. I feed the chicks every three hours for the first four or five days, but only what they will clean up.

I arrange to have several sitting hens at the time an incubator hatch comes off. If a hen has been sitting about a week she will usually own the chicks all right if one is placed under her over night. The hens should be thoroughly dusted with sulphur or lice powder before any chicks are given them, and all coops sprayed with some disinfectant that is a sure louse and mite destroyer. Most of my coops are only dry goods boxes covered with tar paper. They are warm and dry. I have several low pens made of chicken wire, of which the meshes are large enough to allow the chicks to run in and out as they desire. When they are too large for the meshes I raise the wire a little from the bottom. I place a coop with a hen in at each end of the yard and spread a deep layer of chaff over the bottom of the coops. The chaff helps to keep the chicks warm if they are shy of their foster mother at first. By keeping plenty of chaff in the coops a Leghorn hen will care for 25 chicks, the heavier breeds for 35 or 40. As my chicks are all one color they are at home in either coop that belongs to their yard. The wire over top of pen is only hooked on so that I can lift it up to reach food trays and water fountains, which, by the way, cannot be kept too clean. By allowing the chicks to run in and out of the yard they can obtain their green food, grit and many bugs and worms themselves and get sufficient exercise. They will not get out of the yard much for the first week or so until they are large enough to jump over the board at the bottom. The Leghorns are of a more inquisitive frame of mind, so they usually begin to explore sooner than the heavier kinds. I move the yards and cops as often as the chicks wear the grass down. The wire yard prevents hens and older chicks from molesting the chicks while they are eating and is a great protection from hawks.

After the first week I feed commercial chick food, consisting of cracked grains and seeds, three times a day with plenty of fresh water and dry mash always. When I have it, I feed a great deal of clabbered milk. As soon as they are old enough to eat it I drop the chick food and feed a half and half mixture of buckwheat and cracked corn. The chicks do not require extra warmth at night when eight weeks old, so then I take the hens away. I separate the cockerels from the pullets as soon as I can tell them apart. One must be ever on the watch for symptoms of disease, gapes and lice. I never have any trouble with the latter, owing to my belief in the proverbial ounce of prevention, but I have fought great battles with gapes. I keep the ground around the yards sprinkled with lime and try to put the chicks on new ground each year, for every worm, to a chick, is a worm to swallow, and they will be sure to pick up gape worms in continued wet weather. The first symptom is a peculiar sneeze or cough. As soon as I hear this I put a few teaspoonfuls of kerosene in the drinking water, making sure they can get no water but that, and mix sulphur in the dry mash.

Another hard disease to combat is bowel trouble. The chicks should never be fed any moldy or musty food, as that will surely cause bowel trouble. Clabbered milk is a good preventive. Thorough cleanliness is a sure preventive, but one cannot always be as clean as one would like to in regard to chicks. When the chicks begin to show bowel trouble symptoms by excreta clinging to them, feed boiled rice and ginger, a teaspoonful of ginger to a pint of rice, and remove the affected chicks from the rest of the flock. Eternal vigilance and painstaking care are the keys to success in the poultry field whether on a large or small scale. Love of the work is perhaps the greatest factor of all. It is hard to put our best efforts into work that does not interest us. I love my chickens and they love me, as you would easily know if you could see them fly to my lap, hands and shoulders when I go to feed them, and they are the supposedly timid Leghorn breed. Kindness pays as well to fowls as to folks.

Last spring I took off only three hatches, as we moved on a 200-acre farm late in March and I had no time to do more. I ran one hatch of 150 eggs, hatching 115 chicks; another of 134 eggs, hatching 75 chicks; another of 135 eggs, hatching 88 chicks. I sold $15 worth of baby chicks at 10 cents each. That would be 150 chicks at an accurate count, but I always give several complimentary chicks to each customer, according to the size of the order. Besides the chicks I sold, I raised a fine flock of 55 to maturity. There were 26 pullets in the flock. I lost more chicks last year than usual; but, considering the fact that it was the wettest and coldest spring season this part of the country has experienced in a hundred years, according to the records, I am well satisfied with my results.

New York.

At the Annual Farmers' Week held at the Ohio State University early this month, 4046 men and women registered. This is an increase of 40 per cent. over the attendance of last year. These persons represented every county in Ohio, 25 other states and one foreign country.

125,000 Chicks for 1917
Increased capacity means our prices are now the lowest. We are baby chick specialists, have eight years experience, have hundreds of customers that order chicks from us year after year. Our chicks are the big, strong, husky, vitality kind. S.C. White, Brown and Buff Leghorns, B. P. Rocks, W. Wyandottes, B. Minorcas and Broiler Chicks. Safe delivery guaranteed to your station. No order too small, no order too large. Booklet free. Write today.
THE KEYSTONE HATCHERY, Dept. 20, Richfield, Pa.

Barron's Wyandotte Cockerels from imported stock, for sale at $2, $3 and $5 each; also a few trios at $8, $10 and $12 each; sires of these cockerels imported direct from Barron by us; dam of sires, 278 eggs, and dam of grandsire, 283 eggs; dams of these cockerels, 250 eggs and over. Also write for 1917 hatching egg list, now ready.
GRANT BULER AND SON
TROOPER, PA.

Rose Comb Rhode Island Reds
Good Old Yankee Stock
Bred for winter eggs especially, same blood lines as North American Contest pen, No. 38. Among the leaders from the start. In competition with England's and America's best. Eggs and baby chicks.
Funk's Poultry Farm, Lehigh Tannery, Pa.

BUTTERCUPS Alvinian strain, from 260 to 308 egg hens, 15 eggs, $2.00.
W. WYANDOTTES Regal strain, pen average 208, 15 eggs, $1.75; per 100 $8.00;
INDIA RUNNER DUCKS 13 eggs, $1.50. Circulars free.
WOODVIEW FARM, Harlingen, N. J.

FOR SALE Our entire flock of White Wyandottes, Breeders and Show Birds. Bred 15 years for heavy layers. In pens of 9 hens and 1 male at $15.00, while they last. A rare opportunity.
Domineer Farm, R. 2, Middleburg, Pa.

TURKEYS 100 head selected breeders for sale. Bronze, Narragansett, Bourbon Reds, Whites and Blacks. Grown on separate farms. Vigorous, healthy breeders, finest quality, reasonable prices. Write today. Chas. McClave, Box 5, New London, O.

Trap-Nested S.C.W. Leghorns S.C.B. & R. I. Reds Buff Ply. Rocks **200 EGG Strain**
Stock, eggs and chicks. Our booklet free. Satisfaction guaranteed. PARADISE POULTRY FARM, Paradise, Pa. Box D.

CHICKS 50,000 chicks for 1917. S. C. White and Brown Leghorns, Barred Rocks and broiler chicks, 7c each and up. Safe delivery guaranteed. Booklet free. Cyclone Hatchery, Box A, Richfield, Pa.

Single Comb White Leghorns. Barron Strain. Eggs for hatching. Pens contain certified breeders. Stock for sale.
M. J. QUACKENBUSH, Neshley, N. J.

PATENTED TRAP NEST Only 25c. for instructions and right to make for your own use. Can be made from an orange box.
GEO. W. SPENCER, TULLY, N. Y.

R. C. R. I. Reds Bred to lay. Blue ribbon winners Hagerstown, Wilmington, etc. Eggs $1.25 per 15 and up. Free booklet. W. G. Hoerner, Catalpa Poultry Farm, Gettysburg, Pa.

SILVER LACED WYANDOTTES QUALITY BREEDING cockerels from heavy egg laying strain, $3.00 each.
H. T. SIEGFRIED, Conyngham, Pa.

BUFF ROCK Cockerels—Hens—Pullets. Fine specimens, bred from Madison Square Garden—Boston winners. Sure to produce. Winners. Fine layers. Eggs for hatching. FRED D. SOUDER, Souderton, Penna.

SPECKLED SUSSEX. The bird of today. Send for circular. Eggs and chicks. Good winter layers.
Howard L. Davis, Box 999, New Egypt, N. J.

White Rock chicks 15 cents each. The kind for large roasters and lots of big brown eggs. Isaac F. Grifith, R. 2, Mohntown, Pa.

SPECIALTY BREEDER—High class Barred Rocks. Choice geese. Stock and eggs. Many pleased customers. Illus. catalog. E. B. Souder, Souderton, Pa.

S. C. Black Minorca and S. C. R. I. Reds bred to lay. Eggs, 15, $1.00; 100, $5.00. Cockerels, $2.00 each.
Thos. E. Ebersole, Carrollton, Ohio.

Mammoth Bronze Turkeys, America's leading strains, prices reasonable. Satisfaction guaranteed. Write MOSER BROS. Box 249, CLAYSVILLE, PA.

COCKERELS S. C. W. Leghorns. Wyckoff strain direct. $2.00 to $3.00 each. Satisfaction guaranteed. J. M. CASE, GILBOA, N. Y.

S. C. WHITE MINORCAS 24 hens, 2 cocks, $50.00. Utility stock.
Levi D. Yoder, Dublin, Bucks County, Pa.

Beautiful COLUMBIAN WYANDOTTES and heavy BUFF SUSSEX (from imported stock). Breeding cockerels a specialty. Ralph Woodward, Box 18, Grafton, Mass.

"SNOWY WHITE" Wyandottes, 200 egg flock average. Quality supreme. Eggs 15-$1.25, 30-$2, 100-$6 prepaid. J. C. Harden, R. 6, Rockford, Ohio.

Day Old Chicks for sale. 10 Varieties. Strong, healthy hatched. Circular free. Old Honesty Hatchery, Dept. F, New Washington, O.

Pure Barron Strain White Wyandottes. With egg average 217 first pen, $2.00 per 15. From pullets $1.50. Geo. Holtzinger, Wrightsville, Pa.

Baby Chicks White Rocks, White Wyandottes, R. I. Reds, W. Leghorns, $12 to $15 **Circular free** per 100. J. W. CONNORS, Sewell, N. J.

60 Varieties Poultry. Turkeys, Geese, Ducks, Guineas, Bantams, Hares, Covies, Pups, Stock, eggs low. Catalogue free. Pioneer Farm, Telford, Pa.

Hatching Eggs. American-English. White Leghorns. Males 6½ to 7 lbs. Females 4½ to 5 lbs. Trap Nested stock. H. F. BUCK, Dept. C, Tunkhannock, Pa.

60 VARIETIES. Chickens, ducks, geese, turkeys, guineas and hares. Stock and eggs. 60-page catalogue free. R. A. Souder, Box 30, Sellersville, Pa.

Silver Laced Wyandottes Exclusively. Send for circular.
A. SNIDER, R. 1, CALDWELL, OHIO.

Being Overcrowded Will sell fancy Buff Orpington ducks very cheap.
Jacob Leatherman, Wadsworth, O.

CHICKS 8 and 10 cents: S. C. Buff Leghorn, etc. Money back for dead ones. Pamphlet free. Jacob Neimond, Box 20, McAllisterville, Pa.

Eggs. B. and W. Langshans, light and dark Brahmas, B. P. Rocks, Pekin duck, $1.25 per 15. Toulouse and Emden geese, 30c each, postpaid. M. H. Myers, Edom, Va.

Campines, Reds, White Leghorns, Runner and Buff Orpington ducks, heavy laying strain. Eggs. Chicks. Write I. R. TANGER, York Springs, Pa.

White Rocks, Fishel direct eggs. $1 to $2.50 per 15. Chicks $15 per 100. Circular.
ARTHUR SCOFIELD, Green Haven, N. Y.

Biggest Hatches Strongest Chicks
That's what you will get with my Hatching Outfit—and I can prove it. The whole story is in my big Book "Hatching Facts" in colors—sent Free, write for it. It gives short cuts to Poultry Success—what to do and how to do it. Start one of these wonderful Prize Winning Incubators making money for you.
Over 524,000 Satisfied Users

$8.55 Buys 140 Egg Size World's Champion Belle City Incubator
Hot-water—Double-walled—Copper Tank—Self-Regulating. The Prize Winning World's Champion Model—same as used by Uncle Sam—leading Agr'l Colleges—America's most Successful Poultry Raisers. When ordered with my $4.85 World Famous Hot-water Double-walled 140-chick Brooder, both cost only $12.50.
Freight Prepaid East of Rockies Allowed that far to points beyond
Satisfaction Guaranteed
You can also share in my—
$1000 Cash Prizes to customers—conditions easy to get Biggest Prize, order now—the earlier you start, the better your chance to share in the Gold—anyway write today for my big Free Book. Jim Rohan, Pres.
90 Days' Trial 1 ship quick from Buffalo, Kansas City, Minneapolis or Racine
Belle City Incubator Co., Box 49 Racine, Wis.

FREE! Incubator Bargain Book
Send no money! Get this free book just off the press.
Shows you how to make bigger poultry profits at less cost. It will save you from $5.00 to $20.00 on your incubator according to size. Tells you all the things you want to know in buying an incubator. Shows you the way to bigger profits from your poultry. It is a Bargain Book that every poultry raiser will profit by having.
This new book proves how Maynard incubators hatch every hatchable egg at small cost, and with least attention. It shows you all the latest improvements in incubators—many features not found on other machines. All incubators backed by an ironclad guarantee to be strong, reliable, and practical. All these and other poultry supplies at prices which will surprise you. Send a postal today for this big money saving book. Don't spend a dollar for any poultry supplies until you get this free book.
$5.37 buys 60 egg incubator
A time tried and tested machine. Best hot air heating system, double walls insulated with wool felt, steel legs for greater strength, dependable regulator keeps even temperature. A practical, dependable machine that can't go wrong for only $5.37. 150 egg size at $6.25.
Send a postal today for this free book, and let it help you save money.
The Charles William Stores New York
3124 Stores Bldg., N. Y.

Blue Hen COLONY BROODER
The big brooder at the little price
$14.50 size as large as many others rated as thousand capacity. Warms large floor space without overheating brooder house.
Big, powerful heater with quick, sure, automatic control, both top and bottom drafts. Curtain gives freshair—prevents floor drafts.
Money Back Guarantee
500 chick size—$14.50*
1000 chick size—$19.50*
*$1.00 more West of Miss. River
New Brooder Book
Shows why The Blue Hen raises more chicks at less cost. *Get it to-day, with special offer to dealers and farmer agents.*
$14.50 500 chick size shows hover raised
$19.50 1000 chick size curtain removed
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FOURTH PRIZE ARTICLE

Getting Winter Eggs

JESSE J. ANGLEMYER

Getting eggs in the winter time when they command the high price seems to be the wish of many keepers of small flocks on the farm. That has been the wish of the writer for the past ten years, and not until the present winter has his wish been realized. For the past ten years we have kept a flock of poultry. During the summer months we have always had an abundance of eggs. But winter eggs were unknown with us.

We read articles on this subject in various farm papers that come to our home. Others told about their profits from winter eggs. They were getting eggs and we were not. Finally, just a year ago, I said to wife: "If others can make their flocks produce eggs in the cold months, so can we. We will try once more." We made the effort and have succeeded very nicely.

It is my purpose to tell you how we succeeded. Once it was my opinion that we had the wrong kind of breed for winter layers. We had White Leghorns then, and still have. But this breed does not receive any particular credit for our present full egg basket. Instead it is the management and care they get now that is different than formerly. Often the breed gets the blame that ought to be placed on the keeper The other day a neighbor who has a nice flock of Rhode Island Red chickens said: "We are not getting any eggs this winter, and I am going to get a different breed for another season." Now, a chicken lays because it must; and it does not lay because it cannot. The flock just alluded to has had but one kind of feed all winter through, and it just simply cannot produce eggs.

It is not in the breed so much as in the management and care of the flock. A year ago we began to lay plans for this winter's eggs. We decided to hatch at the right time, and, if possible, brood correctly. With a good incubator which we already had, hatching was very easy, when we had good parent stock. And good parent stock is essential. However, it was not always so easy to raise the little chicks. With lamp-heated brooders we had much difficulty to rear the chicks to maturity. So we purchased a coal burning colony brooder, and raised practically all of the chicks to maturity that were placed under the hover. And it was easy, too. Never saw anything grow like they did. They were happy and contented all of the time, growing strong to be ready to produce winter eggs. These chicks were hatched in April. In November they were laying well. It is necessary that the chicks are hatched early enough to be in mature condition when winter begins, if they are to lay. And it is the pullet that does the heavy winter laying. It is also necessary that they are made to grow from the time they are hatched until placed in their winter quarters. We fed ours chick feed, which was scattered in the litter on the brooder house floor. When they were three weeks old they were given a dry mash, fed from hoppers, made of bran, middlings, corn meal, beef scrap and ground bone. At the age of five weeks they were given the run of the yard, with plenty of lawn clippings and other green stuff. Later on they went where they pleased and were fed cracked corn and some wheat.

It was this kind of management that has given us a flock of winter layers that are full of vitality. Low vitality never produced winter eggs. I know it pays to keep the flock growing, and to have it full of vigor and life when it goes into the winter house. In that condition ours went into a clean, disinfected house November 1st. The ends and back of this house are tight, so as to avold drafts. The front faces the south, and windows have frames covered with muslin. Unless it is very mild these are in their place

Breeding Pen of White Wyandottes—Good Dual Purpose Fowls for the Farm

every night; and unless it is very stormy they are removed every day. The flock has been in perfect health all winter. We have had no frozen combs, either. Good, pure air has been conducive to health. This, also, is an essential to winter egg production.

Now, how are these pullets fed? First of all they have a variety of feeds. Always have all the water before them they want, in clean vessels. There is an abundance of litter on the floor. Into this, for the first feed in the morning, is placed a quantity of cracked corn. Then the work begins. How they work to get the last particle of grain that can be found. It is a pleasure to see them work and to hear their happy song all through the day. At noon they get another feed of cracked corn and oats, again thrown into the litter on the floor. In addition to this, at noon, they also get green food, consisting of sprouted oats and mangels. Their last feed consists of whole corn thrown in to them on the cob. Of this they get just as much as they want before going to roost, no more.

There is before them all the time a dry mash made of bran, middlings, corn meal, meat scrap, charcoal, grit and shells. This is placed near the drinking vessels. This dry mash seems to create a thirst. Since water is a large portion of the egg, anything that causes more drinking helps to produce more eggs.

You know how we reared our flock, and how we feed it. Of course, you understand that we are kind to the birds. They appreciate it. They always have a cheery "Good morning" for their keeper. And even though they are Leghorns they like to be fondled and to eat out of their keeper's hand. It certainly pays to be kind to chickens—at least, that is the way I always treat mine.

Is this flock making us any money? Yes; it is. The value of the feed consumed is not greater than it used to be when we fed in a haphazard way. There are 75 pullets in the flock. All winter through they have been laying from 28 to 53 eggs per day. The average is perhaps between 35 and 40.

It is our intention to increase the flock for another year. By hatching at the proper time, by correct brooding and feeding of the chicks, and by correct rearing up to the time they go into their winter quarters, and then by proper housing and feeding, we expect to have another paying flock next year.

Ohio.

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Our Prize Articles

F. V. L. TURNER.

For this annual poultry issue a great number of manuscripts were sent in—every one of them contained valuable information; every one indicated beyond doubt the very general interest that is taken in poultry, chickens, turkeys, ducks, geese and guineas.

A good deal of time has been spent in reading these articles; in some cases several of the articles were read three times in seeking those for prize awards. There was not a single article that lacked merit—every writer seemed to be speaking for the general good because he or she felt that educational effort is sadly needed on a wider scale, that the poultry business may be an open book—the labor of the editors in determining to which stories should go the prizes offered has not only been hard, but with so much of good, has been most pleasant.

The editors may have erred in placing the awards; if they have, the error has been of omission, not commission. To successfully compete for prizes with literary effort is most gratifying—to lose is not an evidence of inability to portray the nearest thing to one's heart—it is an evidence, however, that honest purpose has been set forth with pen, ink and paper in honest effort, lacking nothing but the editors' viewpoint, the only element of risk in this line encountered by writers.

Readers of books find enjoyment in favorite authors; you, reader, may prefer Dickens, another Browning, and another Shakespeare, while the writer ecstatically consumes The Practical Farmer.

Every phase of the poultry business was touched upon in thes manuscripts in an intelligent manner, every good thing that is successfully done by successful poultry raisers was cleanly and clearly presented that the readers of this publication might profit. Particularly was it shown that turkey, guinea and goose rearing can be profitably pursued on more extensive scales than are now practiced. Heretofore turkey raising has suffered a decline—it should be the reverse and in our next issue this branch will receive some attention because recent discoveries have been made leading to the eradication, or at least control, to a great extent, of blackhead.

Likewise, it was plainly shown that where real effort was coupled with common sense success always resulted.

Probably one of the most vital of all conclusions reached, even had the editors been laymen or novices, was that the average farm hen has little chance in the production of fall and early winter eggs at high prices, against the pullet hatched at the proper moment (and this brings up the eternal question of success of the incubator against hen-hatching), carried to maturity at even speed and correctly housed and fed.

In the queries that come to this department rarely does it appear that any inclination to old methods can be detected—every story that reaches this publication seems to teem with a desire for improvement.

Progress will have been made in poultry culture by the time the next annual poultry number rolls around; foreign entanglements will have thrown this country more nearly upon its own resources and the progress expected and predicted will be in keeping with the greater demand that will be made upon the agriculturist and producer of life's necessities. Poultry must supply the meat demand made pitifully short by European conditions; the readers of this paper have indicated ability to raise poultry successfully to an extent very greatly above the average and the results of their efforts will be profit.

Many of the stories sent in, other than those receiving awards, will be published from time to time. The editors wish to express their high appreciation of the splendid material received and to extend hearty congratulations to the winners.

Feeding Fresh Air and Reaping Eggs

(Concluded from page 67)

in such quantities that your neighbors will wonder what "charm" you used to get them.

Which reminds me of an amusing incident which happened lately. A neighbor, whose flock, three times the size of mine, was giving him, in spite of bountiful feeding, scarcely one-tenth as many eggs, strolled down one day to inspect the "fool fellow's" methods. Except for the open-front house and the absence of droppings-boards he could find nothing greatly different (not realizing that therein lay the vital difference from his own methods, until he spied suspended from the roof of the poultry house, and hanging just high enough for the hens to reach by jumping, a cord on which an ear of corn was attached. "Ah," he said, "now I see what makes you get so many eggs—you use a charm!"

Pennsylvania.

Worth While Suggestions

There is scarcely a farm anywhere that is not suited to turkey raising—turkey eggs for hatching are rather easily obtained. Where free range is available little care and less feed are required from the farm folks to bring up a half dozen or more Thanksgiving luxuries, to be sold at a good price.

This is the time of the year when squab broilers are bringing good prices—what a profitable thing an incubator becomes when worked out of the hen's season.

Queries Answered

Coal Burning Brooders. — W. M. G., Virginia, writes: "Are coal burning brooders so constructed as to allow chaff or cut straw to be used as litter without danger of catching fire?"

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THE GARDEN

Edited by W. F. MASSEY

All articles for, or questions relating to this department should be addressed "The Garden," The Practical Farmer, Philadelphia, Pa.

The February Garden

Climate has a great deal to do with the spring preparation. While down here we are sowing peas and lettuce we realize that not far north of us there is still snow, and soil not in condition to work. But the first opportunity should be taken to get the early crops of the extra early varieties of peas in the ground, and the Irish potatoes planted.

With the majority of our readers the middle of February is a time for planning and preparation. Of course, there are things like the tomato, eggplant and early peppers, that demand immediate attention to sowing, either in a hotbed or in boxes in the house.

I have already given my method for growing the early tomatoes, and it is not necessary to repeat it now. But I have had several letters asking my opinion of the best early varieties, and I will repeat here that the Earliana is still the earliest variety. It is valuable for the market grower, because it throws its crops all early and quits. But for the family garden we want a better tomato and one that will fruit longer. I have found that the Bonny Best fills the bill. It is but a few days later than the Earliana, and a far better tomato.

For early potatoes likewise, the Irish Cobbler is the one mainly grown by market men, but for family use I would prefer the old Early Rose and Early Ohio as being of better quality than the Irish Cobbler. Do not use fresh stable manure in the furrows for the Irish potatoes, as it is apt to encourage the scab fungus. You can grow cleaner potatoes with commercial fertilizers, and you can make a home mixture where the materials are available, of equal parts of cotton seed meal and acid phosphate. In other sections let fish scrap be used in place of cotton seed meal.

Some parties down in North Carolina are trying to persuade the farmers that they can make a good fertilizer by making it about half ground limestone. I say, do not mix lime or limestone in a fertilizer with material containing organic nitrogen like cotton seed meal or fish scrap, nor with acid phosphate. Lime is not used as a fertilizer direct, but as a material for curing acidity in the soil and making soil conditions more favorable to many crops. But lime with potatoes will make soil conditions favorable to the scab fungus. The only way to use lime is to harrow it into the soil after plowing, to get it well mixed.

While I always sow tomato seed in February, about ten weeks before it is safe to set the plants out in the open ground, I never sow eggplant seed until March. These are far more tender than tomatoes and need the advancing sunlight. I grow them on in pots, finally getting them into the 4-inch size and growing large plants to turn out and plant after the soil gets well warmed in late May or early June.

Then, too, while I get my extra early round, smooth peas in the ground in February I never sow the better wrinkled sorts until March, and the latest and best of all, Champion of England, not until last of March. Of course, there is a host of varieties, and excellent ones, of peas in the catalogues. I use mainly the Sutton Excelsior and Thomas Laxton, and follow these with Champion of England.

The cabbage and onion plants sown in the cold frame will need to be watched rather closely, not so much against the cold as against getting them too warm. We want tough and hardy plants for setting early, for the succession cabbages and the transplanting onions should be in the open ground before all frosts are over, as it is important to get them out early. The dry onion sets, too, can be planted as soon as the soil can be worked, for even if they start above ground the frosts of March and April will do no harm.

Beets can be sown in a cold frame and gotten to a good size and transplanted just as we do other transplanted plants, and thus get them earlier. The Egyptian is the earliest, but the Eclipse and Model are better. Cauliflower seed sown in a frame under glass will make plants that may be headed before the weather gets too hot if planted in very rich soil and pushed along with applications of nitrate of soda. Then in late February I sow some seed of the Hanson lettuce on a warm border for transplanting later. North of here these should be sown in a frame under glass.

Leek seed should be sown as early as the soil can be worked. We want to get strong plants to set after some early crop, and the leeks need the whole season to get large and fine for winter use. The American Flag leek is good, and also the Carenten.

Try some of the novelties listed in the new catalogues, but do not depend on the novelties for your crop. For the main planting stick to the standard varieties. The catalogues of the leading seedsmen are nowadays good instruction books on sowing and cultivating vegetables. I always prefer the catalogues of houses that do not print exaggerated cuts of unheard-of crops. Had rather trust a firm whose catalogue is illustrated with halftone pictures from actual photographs. There is now a strong movement among business men of standing to make no statements in advertising that are not strictly true, and seedsmen should follow this rule in their catalogues.

See that all garden tools are in good condition, the seed drill clean and in good working shape and the hand wheel cultivators not lying outdoors and rusting. A rusty tool will not be as satisfactory as a clean, bright one.

Do not defer a moment in getting your seed supply, for some things, like beans and sweet corn, are going to be hard to get later, and even now the supply is scanty. Some varieties of sweet corn are quoted now at $15 a bushel. I always order my full supply of garden seeds in January,—as then the seedsman has plenty of time to rush them to me and the stocks are not depleted.

Arranging Gardens on Paper

If one is arranging a garden on paper, the location of the vegetables should be planned in such a way as to keep those of similar cultural conditions together. The perennials, such as rhubarb, asparagus, horseradish and winter onions, should be located at one side with such full season crops as parsnips, salsify and Swiss chard. The shorter season cool crops, such as early cabbage, onions, spinach, lettuce, radishes, beets, carrots and peas, come next in order of their planting, and finally the warmer plants, such as sweet corn, beans, tomatoes, peppers, eggplant, cucumbers and melons.—L. M. Montgomery, Ohio College of Agri.

HORTICULTURE

Edited by C. A. McCUE

Nursery Stock

Orchard owners, farmers and would-be back-yard horticulturists are now busy looking over nursery catalogues to see what fruit trees or other nursery stock they are going to need for their spring planting. When one views the large number of nursery firms in the United States and thinks of the immense number of trees they grow annually it makes one wonder where all the nursery trees go to. Everybody, however, likes to pick fruit from his own tree, and there are several million "everybodies" in this country.

In picking out a nursery tree there are several points to keep in mind. First, what variety shall be chosen, and secondly, what age tree shall be purchased and what size shall it be. It would be impossible in a short article to designate the proper varieties for all sections. If you are an orchardist you probably have your opinions pretty well formed as to what varieties you will grow. If you are an amateur you may or may not choose wisely. It is a pretty safe rule to choose a variety that some one in your locality has succeeded with. If you have your heart set on some variety that takes your eye and none of your neighbors or acquaintances have grown it or know anything of its merits or demerits, write to your state horticulturist at your experiment station; he can usually put you straight as to whether or not it is likely to succeed in your location. Never pick a variety simply because it has done well at some other place a thousand miles away.

What age shall nursery stock be? Apples may be one, two or three years old. Very few people, however, plant three-year-old stock. It is much better to select a two or a one-year-old tree. Most commercial orchardists prefer a one-year-old tree. On some soils and in some localities, two-year-old trees do better. Peach trees, when planted, should never be older than one year. Pears are usually two years old, although some varieties are best at one year. European plum stock should be two years old, as should most of the American plums. Japanese plums are probably best as one-year-old nursery stock. Cherries should be two years old, as the one-year-old stock is rarely large enough to safely transplant. Grapes are best at one year, although most nurseries can furnish two-year-old roots. As to size, the writer prefers a medium sized tree to the large, overgrown trees so often advertised. For two-year-old apple, pear, plum and cherry stock the 3 to 4-foot class will most often prove successful. Smaller classes at this age are liable to be dwarfed and will not start off properly. With one-year-old trees of apple and pear the largest class purchasable will probably be best for spring planting. For fall planting I would prefer, again, a medium sized tree. Peaches of the 3 to 4-foot class are most apt to prove successful. "June buds" do well for spring planting. One cannot expect to get as large a tree in "June buds" as from ordinary budded stock.

A nursery tree does not necessarily have to be straight and thick trunked to be good nursery stock. Some varieties do not grow that way. For example, nursery stock of Williams Early Red apple that is stout and perfectly straight is quite apt to prove to be some other kind of an apple when it comes into bearing, as Williams does not grow straight when young, and straight trees should be viewed with suspicion. I once planted several hundred Jonathan, and some of the trees as they came from the nursery looked too thrifty. I viewed them with misgivings, as they looked too good. These trees came into bearing a couple of years ago and sure enough those nice, large, thrifty Jonathans proved to be York Imperials when they bore apples.

Nursery stock should be promptly cared for when it is received. If packed in bundles, open the bundles and heel in the stock at once. If the stock is frozen, bury it entirely for a few days in order that it may thaw out gradually. Do not expose the roots of nursery stock to the air any longer than is necessary. This is especially true if the stock has been heeled in until root growth starts and is then dug up and taken to the field for planting. Protect all such roots by either taking them to the planting place in a tub of water or carefully wrapping them in a moist blanket or burlap sacking.

Spraying Peaches for Leaf Curl

Leaf curl is a very troublesome disease of the peach, especially so on Elbertas. No doubt thousands of peach trees are seriously injured each year by this disease. Fortunately it is a trouble that is easily controlled if taken in time, but unfortunately a great many growers take no steps for its control until the disease appears and then it is too late. Up to a couple of years ago it was thought that the only way to combat the disease was to spray in the spring just as the bud scales began to open. The experiment at Cornell University, however, has successfully demonstrated that fall spraying of peach trees with lime-sulphur spray at scale strength, or with Bordeaux mixture will efficiently control the leaf curl. This will make it possible for many to control the disease much more easily than formerly. Work is usually piled up in the spring and if no scale is present the peach orchard is liable not to get sprayed. Of course, this information is too late for the control of the leaf curl for the present season by fall spraying, yet the trouble can be easily controlled by the scale spray this spring if the application is delayed until the bud scales are just beginning to open.

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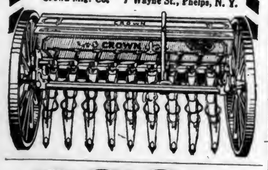

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Manure as a Source of Potash

Since commercial potash as an ingredient of fertilizers cannot be secured, considerable attention has been given to other sources of this valuable plant food. The farmer does not always appreciate the fact that he has in animal manure a very fair supply of potash. A ton of mixed stable manure contains 10 pounds of nitrogen, 5 pounds of phosphoric acid and 10 pounds of potash. It only requires about 1 pound of potash to grow a bushel of grain. Hence an application of 8 tons of manure would supply 80 pounds of potash, an amount sufficient to produce 75 bushels of corn. Not all manure, however, contains 10 pounds of potash per ton. Manure from which the urine has been allowed to drain away through lack of absorbent materials, or manure which has been exposed to the weather, has lost a large proportion of its content of potash. Nearly 90 per cent. of the potash contained in stable manure is found in the liquid portion. Hence the necessity for handling the manure in such a manner that the liquid may be retained. It is only necessary to use plenty of bedding or absorbent material so that the urine may be taken up and then not allowed to leach away under the action of rain. The losses of nitrogen through fermentation or heating which may come about through careless handling of the manure does not affect the phosphoric acid and potash. Handling manure so as to preserve the potash is less difficult than to prevent the loss of nitrogen through fermentation. Manure well cared for furnishes a well balanced ration for crops with respect to nitrogen and potash. Since the content of phosphoric acid is only about half of either nitrogen or potash it is well to reinforce the manure with from 30 to 40 pounds of acid phosphate per ton. In other words, if 8 tons of manure are applied per acre about 300 pounds of acid phosphate should go with it. The acid phosphate may be applied every day or two in the stalls as the manure accumulates. In this way it becomes thoroughly incorporated with the manure. If this method is not convenient the manure may be applied to the land, plowed under and the acid phosphate drilled in just before the crop is planted. Experiments at the Ohio Station carried through a number of years, have shown that the crop producing value of manure is greatly increased by the use of acid phosphate. Manure is not well balanced with respect to the proportions of the three plant food ingredients, hence phosphoric acid should be used with it as a supplement.

The question naturally arises how shall we use manure to the best advantage under the present conditions? In order to distribute the supply of potash as widely as possible it would seem best to apply a smaller quantity of manure per acre. This may well be done for corn or potatoes, especially where a good sod is being turned or where the land has received a good coat of manure once or twice during the rotation. Undoubtedly, better results will be obtained on all sod if a light coat of manure can be turned under. Even if only 3 or 4 tons per acre are used this will supply those organisms which will more rapidly break down the vegetable matter held by the sod and make it available for plant use. It is true that the soil will furnish a proportion of the potash demanded by the plant. Then if manure that is well cared for is supplemented by acid phosphate it will give about as profitable returns as may be expected. Large quantities of manure per acre supply a little too much nitrogen for the best results, especially with corn. A little less manure to which is added acid phosphate will give better results, especially under present conditions of the fertilizer trade.

Testing Seed Corn

Now is a good time to go over the stock of seed corn which was saved last fall, and carefully select the better types for planting. In gathering a large number of ears only a rather superficial examination can be made. The ear may be large enough and have some of the desirable characteristics of a good seed ear, but closer inspection may reveal points that are not desirable. This is one of the reasons for gathering a considerably larger number of ears than will be required for planting. The depth of kernel, along with its shape, should be considered; likewise the arrangement of kernels on the butt and tip of the ear. The maximum amount of shelled grain is found on ears with the butts and tips well filled out. The kernels should be of good thickness and about one and one-half times as long as wide. The shape should approach that of a wedge, but not pointed. A kernel of fair thickness will give the greatest density or weight, and generally indicates vigor. After the best types of ears have been chosen from the seed stock it is well to test each ear to see if it will grow. Even then seed corn has been given the best attention in harvesting and storing there is a chance that some of the ears will not germinate or are weak. No one can determine positively by inspection which ears will not grow. Since one ear plants so many hills (about one-fourteenth of an acre) it is important to have every ear furnish good, strong seed. Any one can easily detect and discard the poor seed ears by the following method: After selecting the ears you wish to plant, lay them in rows upon a table, platform, or on the floor. At the butt of each ear inscribe a number on the floor, using chalk or pencil. Number the ears consecutively from one to the last. From near the tip, middle and butt of each ear remove three or four kernels, ten in all, from each ear. Then take a shallow box 3 or 4 feet square and about 3 or 4 inches deep and place in it about 2 inches of sand or old sawdust. Moisten it down well, spread over the sand a white muslin cloth, cut to fit, which has been marked off into 2-inch squares with a lead pencil. The squares are numbered in order from one in the upper left-hand corner, to the last square in the lower right-hand corner. If one is to test a large quantity of seed at one time, several boxes are needed. Now place the kernels on the squares, those from ear No. 1 on square No. 1, and so on until the box is filled. Place over the kernels a cloth a little larger than the first one and cover with a quarter inch of sand. Moisten thoroughly and place the box in a room where the temperature does not fall below 70 degrees. In four or five days most of the kernels will have sprouted, and in a week those which have not germinated may be considered dead. Care should be taken not to disarrange the kernels on their respective squares when the upper cloth is removed. If the kernels on a certain square, say No. 4, fail to sprout, go to the seed ears and pick out No. 4 and throw it in the feed bin. If only one or two kernels in a square fail to germinate, the ear from which they came should not be used for seed. By this method of testing it is possible for the grower to be reasonably sure that his seed corn will grow. During the late winter is a good time to examine the seed ears and make the germination test.

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The Use of Straw for Soil and Crop Improvement

Pure straw unmixed with manure can often be used to good advantage in soil improvement. If the soil is of a heavy clay nature a moderate quantity of straw turned under will prove decidedly beneficial. This is due to better aeration and ventilation which straw provides for soils of this character. The lightening of the soil due to the straw turned under also increases the water-holding capacity of clay soils. It also prevents this type of soil from running together. Of course, it is necessary that the straw be evenly spread before it is turned by the plow.

It has been found that a light coating of short straw applied to wheat during the winter greatly increases the chances of securing a good catch of Red clover. In this case also the straw should be short and evenly spread over the wheat. The short straw and chaff make an excellent mulch through the winter and in the spring the newly seeded clover will find a lodgment that furnishes the moisture necessary for prompt germination and continued growth. The Ohio Experiment Station found very beneficial results from the use of straw on clover when applied to the wheat as described above. The great difficulty in applying straw both to be plowed under and for top dressing wheat is to distribute it evenly. Machines are now perfected which greatly facilitate this work.

Spring Fertilizers for Wheat

It is too late now to increase your 1917 winter wheat acreage, but it is possible to increase your yield per acre from 15 to 50 per cent. by spending a little more money. Crop experts assert that the coming wheat crop is bound to bring excellent prices, and extra bushels at harvest time will mean extra dollars. Labor costs and other overhead charges per bushel are kept down and net profits shoved up when greater yields per acre are obtained.

For wheat fields not fertilized last fall nor manured during the winter, the Ohio Experiment Station recommends for application in early spring, on nearly all soils that have been under long cultivation, from 200 to 300 pounds of acid phosphate to the acre. Nitrate of soda has paid for itself in some experimental field tests, but the present cost of potassium prohibits its use this year.

In the station's fertility tests 100 pounds of acid phosphate has produced increase in the yields of corn, oats, wheat and hay worth more than $4 at ordinary farm prices. Nitrate of soda used alone has been unprofitable, but its addition to acid phosphate has paid well on Wooster soil, although barely sufficient to justify its use at Strongsville, Germantown and Carpenter substations. These materials may easily be sown by hand in the spring before growth starts and are readily soluble in the soil for the use of plants. Because of the limited response of wheat to potassium and because of its high price this year, the experiment station advises against the use of this element for the present wheat crop, and urges farmers to preserve all barnyard manure carefully to supply the necessary potassium.

JOHN DEERE IMPLEMENTS

BETTER FARM IMPLEMENTS AND HOW TO USE THEM

BOOK FREE 156 page reference book—tells all about a complete line of farm implements and how to adjust and use many of them. A practical encyclopedia of farm implements. Worth dollars.

Describes and illustrates Plows for Tractors; Walking and Riding Plows; Disc Plows; Cultivators; Spring Tooth and Spike Tooth Harrows; Disc Harrows; Alfalfa and Beet Tools; Farm and Mountain Wagons; Manure Spreaders; Inside Cup and Portable Grain Elevators; Corn Shellers; Hay Loaders; Stackers; Rakes; Mowers and Side Delivery Rakes; Hay Presses; Kaffir Headers; Grain Drills; Seeders; Grain and Corn Binders.

This book will be sent free to everyone stating what implements he is interested in and asking for Package No. X-3.

JOHN DEERE, MOLINE, ILL.

John Deere Corn Planters

Accuracy in a corn planter means uniform drop—number of kernels the same in each and every hill.

If the planter misses only six kernels in every 100 hills, the loss in yield is nearly two bushels per acre.

Accuracy in planting has been the main object in designing John Deere planters. One of the many advantages of using a John Deere planter is that with proper handling it will plant practically 2, 3 or 4 kernels in every hill, as desired.

John Deere No. 999 is accurate. It has the John Deere *Natural Cell Fill, Edge Delivery Seed Plate.* Surface of hopper bottom and openings to seed cells are oblique, or sloping. Kernels move toward and enter the cells in their natural position. They do not have to be tipped on edge.

Merely move foot lever to change number of kernels per hill.

Drilling distances varied, and change hilling to drilling or back to hilling made easily.

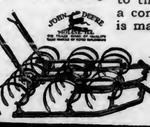
Syracuse Quality

The Syracuse Spring Harrow is uncloggable; has direct draft without side motion, simple and positive adjustments.

Any number of sections may be combined.

Plain or reversible point, high carbon steel teeth without bolt holes.

Syracuse harrows are unusually strong.



Syracuse Farm Implements are the result of over forty years study and experience. Quality has always been the company's motto.

Every Syracuse implement is scientifically designed, and is built of the best material obtainable. To assure its uniformity and keep the quality of iron up to the high Syracuse standard, a complete chemical laboratory is maintained by the company.

A careful analysis is made of each day's melt. When you buy a Syracuse implement you can be assured that you will get satisfaction.

John Deere Syracuse Plows

Syracuse Plows have an enviable field record among farmers in chilled or combination plow territory.

Here is a feature that is appreciated by the man who buys a Syracuse Plow. Extras ordered will be duplicates of the original parts. Bolt holes will be in the right place. Every part will fit. In fact all necessary parts that go into a Syracuse Plow could be ordered as repairs and when received built into a complete plow. Extra parts are exact duplicates—no trouble results.

The John Deere Two-Way Plow works equally well on hillside and level land.

A slight foot pressure swings frame and accurately locates plow bottom.

Automatic shifting hitch—clevis cannot fail to move to position.

Automatic horse lift. Operator's foot engages latch—pull of team raises the bottom. Hand lever also provided.

Wide tread—prevents tipping on hillsides.

Steel frame—strong.

Made expressly for Eastern conditions. Can be equipped with all styles of bottoms.

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To designate and brand their goods, "Deere & Company," use the "leaping deer" trade mark. It is the best known implement trade mark in the world.

The reason that it is so well known is because of the high quality of the implements themselves.

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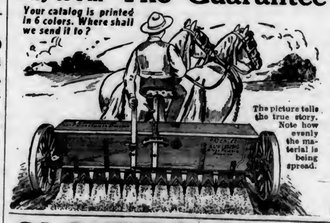

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Three earliest vegetables in cultivation for 10c. One packet each, Robinson's Earliest Tomato, Earliest Round Red Radish, Earliest Lettuce, 10c to new customers. Regular price 30c. CATALOG FREE.

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SEED OATS, BARLEY, WHEAT, POTATOES. All New varieties. Largest yielders known. Best quality. Prices low. New Catalog FREE.

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Cannery Pea Culture

E. F. WHITE

The growing of cannery peas as a money crop is coming to assume important economic proportions in some sections of the East, notably in certain localities of the eastern shore of Maryland and Virginia, in North Carolina, and in some sections of Delaware and New Jersey. It is well that this industry should grow, for there are three reasons why it is a profitable farm crop.

In the first place, the average yield from year to year in this section is about one ton to the acre, and these sell at a pre-season contract price of between $50 and $60 per ton. Since the cost of growing is, at a liberal estimate, not more than $20 per acre, it is readily seen that fair profits are returned.

A second advantage to the growing of field peas is the fact that they are a leguminous crop; that is, they have the power to gather free nitrogen and store it on their roots through the intermediation of nitrogen-fixing bacteria which inhabit their roots. In the growing of this crop one must bear in mind that these nitrogen-fixing bacteria must be planted (inoculation) upon the seed, either by means of artificial culture or by the use of soil from fields previously grown to this crop if the peas are to succeed at their first planting. On soil that has grown field peas during the five years previous to sowing, inoculation will not be necessary. Inoculating culture can either be obtained from commercial houses making it, or the Department of Agriculture, through the county agents, will furnish a limited quantity free.

A third advantage to the growing of field peas is that this crop fits admirably into a good system of rotation As the crop is harvested in this latitude about June 1-10 there is ample time to plant the same land to silage or field corn; this corn can be sown at the last working to crimson or some other clover; and this clover can be turned down in early spring for another crop of peas. In this rotation three crops per year are grown on the same land, two of these are money crops, one is a legume and a green manure soil improver, and the peas in addition to being a money crop are at the same time nitrogen gatherers and therefore soil improvers. Such a system of rotation will mean that the soil will steadily be made richer.

For the best results in field pea culture the land is winter disked, plowed and again disked. About 300 pounds of a complete fertilizer analyzing about 3-8-3 is drilled to the acre. The land is again spike harrowed. About February 20th peas are drilled in broadcast. About four bushels of seed per acre are required; these cost $3 per bushel to the grower. With the peas it is a good practice to drill in about 200 to 300 pounds of basic slag to the acre. After the peas are planted no further work is necessary until harvest, which in this latitude usually comes about the first of June.

Some farmers cut their peas with mower, while others prefer to scythe, the latter arguing that all peas are gotten with the scythe, which extra getting more than repays for the extra labor necessary to scything over mowing. Either practice is satisfactory. The average harvest is about one ton of shelled and cleaned peas per acre; these go at 2½ cents per pound, or $50 per ton, and up. Contract prices prevail, so that the farmer knows, before peas are planted, what he is to receive for his crop. In some cases the canners return the vines to the growers. On an acre yielding one ton of peas there will be about 5 to 6 tons of vines. These vines, when well cured, are excellent cattle and horse feed for winter, and when green they are much relished by stock of all kinds. Vines are chiefly used for roughage and bedding in manure pounds. Much of this material is allowed to go to waste, but some canners are planning to erect silos and use this feed with some concentrates for steers in winter.

These shelled and cleaned peas are cooked and canned in a brine composed of 20 pounds of sugar, 15 pounds of salt to 100 gallons of water. They are usually preserved in quart cans, each holding slightly more than a pint of peas and a quantity of brine. These cans usually retail at 15 cents; picked peas, green, usually retail at $2 per bushel.

It is the general practice in this section for growers to buy seed peas from the canner. These peas are grown in Michigan and cost the canner $5 per bushel in wholesale lots. The canner either sells these seed peas to his growers at $3 per bushel, or he sells them at $5 per bushel and pays, instead of $50 per ton, $60 per ton for peas. There is small difference in the end, as the $2 saved on 4 bushels of seed per acre means $8 an acre saved in seed, whereas the other difference is only $10.

Of the suitable varieties of cannery peas, Alaska ranks first. It is the earliest and the heaviest bearer. Ameer is second to Alaska for planting in this section. Gradus ranks third, with Horsford's Market, Advance and Everbearing following in about the order named. On some variety tests in the field of A. Howard Johnson, Centreville, Md., it was found that the Advance and Everbearing had the largest peas and heaviest pods of any varieties, but these were few in number. Smaller sized peas sell higher than the larger ones. Where the Alaska vine yielded six pods per plant, Advance and Everbearing were yielding about two pods to the plant.

Maryland.

Pennsylvania Agricultural Show Awards

The most successful agricultural show ever held in Pennsylvania took place in Harrisburg during the week of January 22nd, when the allied agricultural associations of the state and the Department of Agriculture joined in planning and conducting the Pennsylvania Corn, Fruit, Dairy Products and Wool Show.

J. A. Smyser, of York county, carried off the individual honors for the best ear of corn in the show and it was what many experts called a "perfect ear." Greene county, in the extreme southwestern corner of the state, again carried off the honors as the champion corn county. There were over 600 10-ear samples of corn on exhibition and between 50,000 and 60,000 apples. Adams county was acclaimed the champion apple county of the state with a large display of many varieties of apples. The Sunny Side Orchard Company of Tyrone had a display of 36 named varieties of apples and carried off the best collection prize. The Alba Creamery was awarded the championship for creamery butter, while Mrs. W. N. Armstrong, of Saltsburg, was proclaimed the champion dairy butter maker of the state.

One of the features was the corn judging contest of the boys from thirty-six rural community vocational schools of the state. The individual sweepstakes prize as the best judge of corn was captured by Forrest Richards, of Mansfield, Tioga county. The Centreville, Washington county, team won the team judging, with the Honey Brook, Chester county, team second.

Armour's Fertilizers

You know where the ANIMAL MATTER in Armour Fertilizers comes from. You may have grown the hogs and cattle.

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The "Clipper" Improved
Grain and Seed Cleaners

The Clipper is different in principle from all other grain and seed cleaners. It has been thoroughly tried out by years of constant use by thousands of the best farmers, the U. S. Department of Agriculture, Agricultural Colleges, Experimental Farms and hundreds of the leading seedsmen, seed corn growers, etc.

The Clipper is the only mill that has the "Vertical Blast", which weighs every seed and kernel, separating the light, shrunken, immature seed from the plump, heavy mature seed, 98% of which will germinate under test. This point alone makes much of the difference between crop success and failure.

No Mill Will Do Good Work Without the Proper Assortment of Screens

We furnish an outfit of 12 screens for cleaning and grading all kinds of seed, seed grain, seed corn, clovers, alfalfa, millet, timothy, flax, peas, beans, cow peas, soy beans, etc. And after the most careful study and tests in actual work, we guarantee this screen outfit to be the best that has ever been offered with any mill. There are screens for clover containing buckhorn or plantain, timothy seed containing pepper grass, for separating cockle from wheat and many other difficult separations.

Sold Under a 30 Day Guarantee of Satisfaction or Money Refunded

Made in Two Sizes: No. 1-B $25.00 No. 2-B $35.00 (Freight prepaid to any point east of the Mississippi River)

In Successful Farming Three Factors are Prominent—the Soil, the Man and Good Seed

The Clipper Cleaner puts success within your reach by insuring the Good Seed

Write for Catalog and the address of the nearest jobber

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So says one of our customers. Don't you want one too? Harris' catalog is a real help to all who plant seeds. It gives true descriptions, pointing out the faults as well as the merits of the different varieties. A label on each lot of seed tells what per cent will grow according to our test.

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OUR EXPERIENCE POOL

All our readers are invited to contribute their experiences on the topics under discussion. $2.00 will be paid for the best, and $1.00 for the next best contribution, and 50c for each other article published. Contributions must be in our hands 15 days before date of issue.

TOPIC No. 1214, MARCH 1.—Do you find oats a profitable crop? Do you broadcast or drill them and what fertilizer do you use? Can you tell us how much they cost you an acre or a bushel and what they return? What success have you had cutting them green for hay? Have you found any crop which you can profitably substitute for them?

TOPIC No. 1215, MARCH 15.—Describe the type of fence you find the most satisfactory on your farm. How long does it last and what does it cost per rod erected? How many acres on your farm and about how much each year do your fences cost? What have you done since you have been on the place, to reduce this yearly charge?

TOPIC No. 1216, APRIL 1.—What has been your experience in tile draining land? How much has it cost you for each rod laid, and what have been the returns? Have you used a horse or power machine for digging the ditch? Have you ever made and laid concrete drains?

Topic No. 1213—What methods do you use for testing your seed corn?

W. P. B., Quarryville, Pa. — For a number of years I have been testing my seed corn with one of the commercial water testers. I take 6 grains from different parts of the ear and put them in a special numbered compartment corresponding with a number put on the ear. I let them soak in luke-warm water for about 36 hours, when the water is drained off and then the tester is put in a warm place for ten days and the test is completed. My experience in corn testing has certainly been an eye-opener to me. I have had some of the very best and apparently sound ears test altogether lifeless. Thinking there might have been an error in the test I tried it again with the same results. I then planted a few grains in the garden and none grew. Any corn grower would have picked them out as good ears. In some unexplainable way the germ had been killed; in some others the sprout was so weak that they would have failed to develop an ear under the most favorable conditions. Two years ago I had an experiment as to the results of testing seed corn. Four rows through the field were planted with seed that tested strong, 4 rows that tested weak and 4 rows that tested dead or very weak. Late in the summer when the corn was nearly ripe I went through the corn and counted the number of stalks in the rows, the number of good ears, the number of nubbins and the number of barren stalks. The results were as follows: Strong testing seed had 485 stalks per row with 453 large ears, 21 nubbins and 10 barren stalks. Seed testing weak had 471 stalks per row with 443 large ears, 15 nubbins and 13 barren stalks. The seed testing dead or very weak had 327 stalks with 287 good ears, 24 nubbins and 16 barren stalks. This was on a well fertilized soil under favorable conditions. The secret of a heavy yield of corn is to have a stalk wherever there should be one, and this can only be accomplished by testing the seed.

R. C. U., Peach Bottom, Pa. — The only way to make sure of a good stand and quality of corn is by means of germination tests. I have heard men say they can tell by the way an ear of corn shells whether or not it will grow. Others argue that it is not worth the bother to make a germination test.

I prefer to make sure of my seed corn, and this is the way I made the test: First I made two boxes about 24x18 inches and 2 inches deep. Next I went to my grocer and got some discarded egg crate fillers. I arranged these fillers in the two boxes so as to form little divisions, each division to accommodate six grains of corn. Next I sprinkled about a half inch of dirt in the boxes. This formed a seedbed and also helped to hold the fillers in place. Then I laid the seed corn out on boards and culled out the undesirable ears. The remaining ears were numbered and six grains were taken from each ear and placed in the little divisions (also numbered to correspond with ear number) in the boxes. More dirt was added to cover the kernels. I then moistened the earth and set the boxes in a warm place beside the kitchen stove. The earth had to be kept moist until the sprouts began to appear. It is very interesting to watch each little division at this time. Some are perfect. Last year about 70 per cent. of my seed proved to be perfect. Some few ears did not sprout at all. Others sprouted 1, 2, 3, 4 and 5 grains out of the six. I culled out all ears that sprouted less than five grains. I have used the grader with success, but find that it is of little use unless an edge-drop plate is being used in the planter; then it is very necessary to have corn graded.

I plant my corn from an inch and a half to two inches deep. This makes it a little harder for the crows to get at and also puts the roots down in the soil, so that the stalks will withstand the storm better. When replanting is necessary we take the corn and soak it in water (warm) for a day or so and then stir in a little tar. The tar adheres to the grains, which makes crow-proof seed corn.

G. H. D., Meetze, Va.—Seed testing is a highly profitable spare time occupation, according to my experience. I always run a germination test on all seed before it is planted. I select my seed corn from the field in the fall and store it in a dry, well ventilated room where it is protected from vermin. A practical tester is of the type of home-made testers recommended by the Federal Department of Agriculture. It pays to germinate 10 kernels from each of the best ears, then use the ears which make the highest germination records for seed purposes.

I have found that it pays to use a commercial grader, as the seed is then more uniform and the inferior specimens are culled out. A good stand of corn can only be secured from good seed and that is why the somewhat tedious work of testing and grading represents time well spent. Furthermore, I recommend the thorough testing of the corn planter each season before it is used, to see that it drops or drills exactly the desired amount of corn. The machine can be blocked up and tested or it can be run over a hard piece of ground where the seed will not be covered up.

Where I use fertilizer on my corn I find that it is best to distribute the fertilizer in a grain drill after the corn has been planted, as the operation of the drill over the field is equal to a harrowing and breaks any light crust which may form; while better results in urging the seed toward rapid germination and growth come from such a disposition of the fertilizer. Good rotations and fall plowing are efficient first-aid measures in controlling corn crop pests.

J. R. T., Edinboro, Pa. — Early in April we test our seed corn for germination. On the inside wall of some building, where it is most convenient, rows of 10-penny finishing nails, because of their small heads, are driven into the boards about one-third their length. These nails are all numbered, 1, 2, 3, etc. The ears to be tested are forced on these nails, butts foremost. This keeps them in regular order. On two saw horses, underneath these rows of corn, we place a shallow box which is about 8 feet long, 3 feet wide and 5 inches deep. About 3 inches of sawdust is placed in the box. By means of some binder twine and a few small staples, the surface of the sawdust is divided into 2-inch squares, the squares being numbered to correspond to the number of ears. Six kernels are selected from each ear and placed in the squares. This is all covered with a layer of gunny cloth and the cloth is covered with about one inch of sawdust. It is then all sprinkled with warm water and left to germinate, in a temperature rather warm. In the course of a week the top layer is carefully removed and a record is taken of the germination of each ear. When shelling the seed we take only the ears which gave the best test, and shell the butts and tips in another dish. By this ear method of testing seed it is possible to secure seed with a high percentage of germination; much more so than if the seed was all shelled and a sample taken from the mass and tested.

We are very careful in adjusting the planter into perfect working order, and prefer to have the seed too thick than too thin, as it can be easily harrowed out.

Superior Drills will do your work the way it should be done, no matter where you are located or what your seeding conditions may be. Superior Drills save time, seed, labor, repair bills, and are noted for Even Sowing, Light Draft, Simplicity, Ease of Operation, Great Strength, Choice Materials and Workmanship.

Every Superior Drill is Warranted to be and do all claimed for it

Made in all sizes and styles for sowing large and small grains, with or without fertilizer, in 4, 6, 7 and 8 inch rows.

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Pure Qualities. Wonderful values. Profits divided with customers. Clover $8.25 per bu. Timothy $2.25. Alsike Clover and Timothy $4.00. Sweet Clover $3.75. Alfalfa $7.00. Other seeds in proportion. All sold subject government test under an absolute money-back guarantee. We are specialists in grass and field seeds. Send today for our big profit-sharing, money-saving SEED GUIDE which explains. All free.

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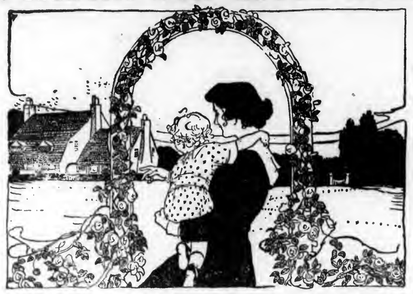

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The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

MARCH 1.—What have you found to be the greatest labor saving device for your inside duties? Tell us how much it cost and what influenced you to buy or install it. What are some of its advantages?

MARCH 15.—What do you find best for walls, a plaster tint, paper, oil paint or water paint? Tell us what success you have had applying any or all of these yourself. Give us an idea of how you treat the different rooms.

APRIL 1.—Tell us of some short cuts or easy ways and aids for doing the family sewing. To what extent do you find it economical to buy your and your children's clothes ready made?

Get your contribution in early If it does not reach us at least 15 days before the date of issue, it will be too late.

Tell us about keeping summer boarders. What things do you do which seem to please them the most? How much do you charge a week and do you find it a profitable undertaking?

MRS. S. S. F., Plymouth, N. H.—In keeping summer boarders I plan to have wholesome food, well cooked, serve few kinds at a meal, but have everything absolutely fresh and well prepared, hot things served hot and cold things cold. Fried foods rarely appear on my table. Fresh meat—beef, lamb, chicken or pork (this last I can in winter) we have daily for dinner. The left-over pieces are diced or minced and served with crisp lettuce, and may be other vegetables, in a salad, for tea, or on cool evenings creamed or hashed. For breakfast, eggs, cooked in various ways, bacon, codfish, in balls or creamed, always prove acceptable to my people. Light puddings and cakes, often served with whipped or ice cream, are more desired and easier to prepare than rich pastry, etc. I use mercerized cotton tablecloths and pure linen napkins, which are changed daily, and cloth as often as it is the least bit soiled. Dishes and silver are plain, but kept shining clean. An abundance of fresh vegetables and fruit, eggs, cereals and milk, cream and butter are what city people crave. Beds are provided with comfortable springs and mattresses, and mattresses are kept in removable cotton covers, often laundered, as are also cotton pads, blankets and spreads. We live in an old house and the floors are painted; living rooms have mostly congoleum rugs that are easily scrubbed clean, and rag rugs are used in bed rooms and may be easily laundered; also simple window curtains. White enameled toilet ware is light to handle and care for. A blaze in the open fire-place is a welcome attraction on cool evenings. I have a small laundry room and at certain hours each day boarders are permitted the use of this, which they often take advantage of to wash out small articles, or even large ones. I charge $7 a week for board. I find keeping summer boarders a fairly profitable undertaking.

MRS. S. M. J., Kentwood, La.—I am not strong enough to wait on boarders, but every summer I find from six to ten persons who are willing to contribute enough to pay actual expenses. Then we all work together, washing, ironing, churning and milking, and preparing a simple bill of fare, mainly vegetables, fruits, eggs, milk, butter and chicken. It is jolly fun to tell one's boarder if she wants pie or cake to go make it for herself.

Then we hitch up the wagon and all pile in and drive to church on Sunday, to the woods for a picnic, or to the creek for a fish-fry (taking, of course, a basket with plenty of bacon and chicken to fry in case of a poor catch) on week days.

Sometimes some of them will bring their empty cans and help me with my canning for fruit to fill theirs. Last season I had three girls who worked in a laundry, a widow and two young daughters, who "did anything they could find to do" for a living, an elderly spinster, who lived around with kin for her board and clothes, and an aged widow lady. We all worked, played and enjoyed ourselves like one big family.

They all went back to the city refreshed in body and mind. And I, while I did not make one cent, was not out anything, and I felt happier for I knew that not one of that crowd could have afforded a vacation under any other circumstances.

MRS. E. B. S., Grove City, Pa.—Our experience on this subject is somewhat limited. Those we have had from the city claimed distant relationship and enjoyed privileges of their own selection, making the undertaking more harmonious to "mine host than to mine hostess." One trial was sufficient to discard the undertaking. When already burdened with family cares entertaining strangers is not highly appreciated long at a time.

City boarders, as a rule, expect first-class entertainment, and are rather particular in their choice. Two dollars per day, under the present high cost of living, would not remunerate for the extra amount of labor and sacrifice. The maple sugar industry was in full blast when we undertook the trial. Of course, our city boarders enjoyed the treat, but the gain was on the side of our guests and the matter dropped.

MRS. L. M. A., Hunt, N. Y.—In answer to the question in the Women's Exchange, would say that I lived on a farm and have found it both pleasant and profitable keeping boarders, and I did not work nearly as hard as when entertaining company. A few years ago I was induced by some friends to board some of their city friends. At that time I offered to take them (ladies) for $5 per week and they took the entire care of their rooms, hiring their laundry work done outside.

What did I do that pleased them most? I left them alone and put good (not extravagant) meals before them, having something different each day. We had good gardens, plenty of milk and eggs, and we bought very little extra for them. I made light fancy dessert, rather than pies We took them for rides when convenient and they helped with the dishes and in preparing vegetables and fruits. They were very considerate and careful not to make extra work. We were bountifully remembered by them at Christmas time. I considered the money almost an entire clear profit, and meanwhile the "star" boarders remained away.

MRS. L. C. L., Canandaigua, N. Y.—Our location is on the east shore of Canandaigua Lake, in Ontario Co., N. Y. The keeping of summer boarders commenced with me as a side issue about twelve years ago. The house equipment goes a good ways toward pleasing the people. Our extra equipment consists of a pneumatic water pressure tank which furnishes water for a bath and closets, a heating system of hot air conducted to both floors of the house, and an acetylene gas plant lighting all the rooms.

The dining room is an enclosed porch for summer use, which is protected by wire screens and awnings. This dining room seems to be one of the most pleasing things, as we have a fine view of the lake. The meals consist largely of home products, such as milk, cream, eggs and butter, cheese made in the spring before the season opens, sausage made in winter and packed for summer use, and hams pickled and smoked on the farm.

The baking and pastry is all of my home production. It seems to please the city people to have home-made food. Home grown fruits, such as strawberries, peaches, pears and apples, help to please them as well as make the business pay.

The price per week for board and room is $8. It has been a profitable undertaking. I have accommodations for about 15 boarders, which is entirely inadequate for the number of applications.

This little business has been established without solicitation or advertising. The people come year after year. They engage in many outdoor sports for their recreation and amusement, such as bathing, boating, motoring, croquet and ball playing. The automobile and steamboat furnish conveyance from station to the house, a distance of six miles.

What Our Farm Women Ask and Answer

Mrs. S. M. J., Louisiana, writes us: My father was a professional paperhanger, and this is the method he used in making his paste: Three pints of wheat flour; rub into 3 pints of cold water, pour while stirring in 8 quarts of boiling water; let boil five minutes, cool, and if lumpy strain through a coarse sieve. Add 2 heaping tablespoonfuls of powdered alum and ½ ounce of carbolic acid. The latter keeps out insects.

Mrs. A. J. H., Maryland, writes us: Noting Mrs. A. I. M.'s request for a receipt for Scotch cakes, I believe I can furnish what she wants, as follows: One grated cocoanut, 4 cups brown sugar, 2 cups corn syrup, 1 cup butter, 1 quart flour, a little pinch of soda; mix over night and bake next morning. Bake in large bread pans. Take a piece the size of a large marble and put in greased pan. Don't allow them to run together, and don't have oven too hot; if so, they will burn. Bake until crisp.

Mrs. J. M. B., Pennsylvania, suggests that Scotch cakes be made as follows: One pound brown sugar, ½ pound shortening, 2 eggs, teaspoonful soda, 3 tablespoonfuls cinnamon, 1 pound flour. Roll thin and bake quickly.

L. F. W., North Carolina, writes in reply to Mrs. K. A. B.: The best crack filler is paper pulp. Shred it and cover with boiling water. When the water gets cold it will be like putty, and when dry it is as hard as wood. Put in cracks with a case knife. It can be colored if so desired, by using a package of coloring in the water, dissolving it in cold water and putting it in the boiling water before pouring on the paper.

I would also like to say in reply to Mrs. E. C. T., that to prevent lamp chimneys from breaking easily, put in a vessel of cold water and boil rapidly for 15 minutes. Take the vessel from the fire and let the water get perfectly cold before taking the chimneys out. They are liable to sliver to pieces if the cool air strikes them while hot.

Shrubs That Attract Birds

With the rapid disappearance of bird life, there is a growing appreciation of birds and a greater desire to attract them to our homes. One method of doing this is to plant trees and shrubs bearing fruits that birds eat. When ordering nursery stock this spring why not include something which will not only decorate the home grounds, but will prove a winter life-saver for the birds? The following list gives a few suggestions: Woodbine, bittersweet, wild grape, matrimony vine, sumac, wild roses of many kinds, barberries, snowberry, coralberry, elderberry, high and dwarf bush cranberries, arrowwoods, sheepberry, wayfaring bush, witherod, tree and shrub dogwoods, blueberries, spice bush, mulberries, mountain ash and thorn trees.

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8144.—Children's rompers. Cut in sizes 1, 2 and 3 years. The garment slips on over the head, buttons at the shoulders and lower edge.

8148.—Misses' dress. Cut in sizes 14 to 20 years. The dress has front closing, long or short sleeves and a two-gored gathered skirt with regulation waist line.

8180.—Children's dress. Cut in sizes 2, 4, 6 and 8 years. The dress closes at the front, has a one-piece gathered skirt and a pretty collar.

8169.—Ladies' Russian blouse. Cut in sizes 34 to 42 inches bust measure. The blouse closes at the front and may have either long or short sleeves.

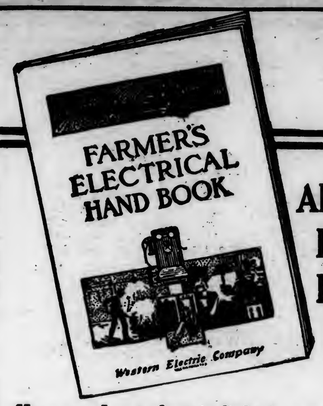
8161.—Ladies' apron. Cut in sizes 36, 40 and 44 inches bust measure. The apron closes at the back and there are tie strings at the back.

8152.—Ladies' skirt. Cut in sizes 24 to 34 inches waist measure. The skirt is cut in four gores, closes at the left side of the back and side and back gores are gathered to lower edge of belt.

8174.—Girls' dress. Cut in sizes 6, 8, 10, 12 and 14 years. The dress closes at the front and yokes and panels are in one.

8160.—Ladies' skirt Cut in sizes 24 to 32 inches waist measure. The skirt is cut in four gores, closes at the left side of the front and has a separate belt.

8183.—Ladies' dress. Cut in sizes 36 to 44 inches bust measure. The dress closes at the front and has a three-gored gathered skirt with regulation waist line.



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Other People's Business

(Continued from page 66)

and denuded effect which resulted being a necessary preliminary to the rippling luxuriance of the afternoon. Persis stated her errand tersely.

"Susan, they've sent for me from Trotters', and there's no telling when I'll be home. I wish you'd go up to the house, if you've nothing particular on hand and look after Joel. He's the helplessest man ever born when it comes to doing for himself."

In her complex excitement, Susan fluttered like an impaled butterfly. "Oh, dear me! I mean of course I will, Persis. But what do you want me to do?"

"Oh, just get his meals and amuse him till I get back. You can keep Joel pretty cheerful if you'll let him unload all his notions on you. Joel generally finds a good listener good comp'ny."

"And so poor Lizzie Trotter's going through that again," exclaimed Susan, momentarily forgetting her own prospective ordeal, in sympathy for the other woman's severer trial. "I don't want to accuse Divine Providence, but I must say it hardly seems fair to put all the responsibility for getting children into the world off on women. If 'twas turn and turn about, now, I wouldn't say a word."

"I guess if that was the way of it, there'd never be more'n three in a family, and it took a sight of people to fill up the world, starting with the Garden of Eden. Well, I must hurry, Susan. I won't be gone a mite longer'n I can help."

As Susan removed her crimping pins, her agitation grew. The favor Persis had asked so lightly, and she had granted so readily, took on a new aspect as she considered it. Susan shared the respect of Clematis for Joel Dale's intellectuality and stood rather in awe of his foibles. Her hands trembled as she arranged her undulating locks in the fashion ordinarily reserved for afternoons. Her cooking might not suit him. Her efforts to be entertaining might not measure up to his lofty standards. She quaked, picturing his possible displeasure. For this courageous champion of the rights of womankind who did not hesitate to call the Creator Himself to account for seeming injustice, became the meekest of the meek when confronted with the sex from which oppressors are made.

Susan's apprehensions were not so groundless as might be fancied. Joel Dale was in a very bad humor after he had finished reading his sister's note. Joel held the not unpopular theory that the supreme duty of woman is to make some man comfortable. Religion and philanthropy were legitimate diversions if not allowed to interfere with the higher claim. Even the exercise of talent might be tendered a patronizing approval, if this, too, knew its place. Joel was willing that Persis should utilize her gifts in earning his living provided she did not forget the complex ministrations involved in making him "comfortable." He was ready to allow her to help her poorer neighbors, so that she was never absent when he wanted her. But if that jealous divinity, his Comfort, were denied its due, the indulgent brother was lost in the affronted ty ant.

Poor Susan Fitzgerald found her tremors doubled by the sight of his lowering face. "Mr. Dale. I've come up to keep house for you today, seeing—seeing Persis has been called away." She blushed, realizing that Joel was undoubtedly in the secret of that errand. After forty years in a world where birth is the one inevitable human experience, aside from death, she had never been able to rid herself of the impression that it was essentially immodest.

Though the cloud of Jovian displeasure did not remove immediately from Joel's brow, his mood underwent an instant change. His sister had not been guilty of leaving him to shift for himself. The opportune appearance of Susan Fitzgerald indicated a proper regard for the masculine helplessness, which is also, by some obscure process of reasoning, the badge of masculine superiority. Moreover, Susan's presence furnished the opportunity of setting forth in detail sundry theories which to Persis were an old story. To a gentleman of Joel's temperament, a new audience is at times a necessity.

"You won't have much trouble getting my meals," he assured her, his cold dignity thawing rapidly. "Just set on the dish of apples and nuts."

Susan's near-sighted eyes narrowed as she gazed at him. "You mean for dessert?"

"Dessert! When Adam and Eve started housekeeping do you s'pose they sat down to soup to begin with and wound up with pie? The Lord put 'em in a garden instead of a butcher's shop, because He wanted 'em to eat vegetable food and not poison themselves with dead animals." Joel's voice had grown almost cheerful. His ardor in the dissemination of his dietetic theories waxed and waned, but when there was a new observer to be impressed, he always found the crucifixion of his appetites well worth while. He seated himself at the table with a gesture which seemed to wave into some remote background the temptation of sausages and buckwheat cakes.

"No trouble for me. Just set on the nuts and apples, same as our ancestors ate before they got wiser'n their Creator and learned to cook their victuals. We're the only animals that ain't satisfied with raw food. And we're the only ones that are everlastingly kicking about indigestion."

"I declare!" exclaimed Susan Fitzgerald, carried away by this masterly logic. "You certainly have your own way of looking at subjects, Mr. Dale."

"Well, I'll admit that I'm not much at taking up with second-hand opinions. Now, here's another idea of mine." He held up a walnut between his thumb and finger. "There's a tree in that, ain't there?"

"Why, yes." Susan's ready admission gave every indication of a willingness to be impressed.

"Well, what's enough to give a start to a tree that may grow seventy feet or over, ought to start a man off to his day's work pretty well. That's my way of reasoning."

"But don't you feel an awful goneness after a breakfast like that?"

"Goneness!" Magnificently Joel waved away the suggestion. "With an apple and five or six good nuts inside me, I feel like I could run through a troop, as the psalmist says, and leap over a wall."

Susan's admiring murmur indicated that the sustaining effect of the diet Joel recommended was due less to its intrinsic virtue than to some unusual and dominating quality of Joel's personality. And Joel, struggling with a peculiarly tough Brazil nut, reflected that Susan Fitzgerald was an intelligent woman as well as an agreeable one.

The morning passed pleasantly for both. Susan possessed the gift which men have ever highly esteemed in the sex, the faculty of continued silence, combined with close attention. Some of Joel's theories impressed her as startling, but like many very proper people, Susan rather enjoyed being shocked, if the sensation was not overdone. Whether she murmured approval or blushed in decorous protest, it was plain that she found Joel's monologues immensely interesting. She could hardly believe her ears when the clock struck twelve.

Susan brought the nuts and apples out again after their brief period of retirement, and seated herself at the table, to share the Eden-like repast. "You'd be an awful easy man to cook for, Mr. Dale," she said, with a glance which in another woman would have been coquettish.

But the arrow glanced harmless. Joel's mood was abstracted. Not for some time had he put into practice his theories regarding uncooked food, and his rebellious appetite craved more stimulating fare. He munched his nuts with distracting memories of yesterday's pot roast. He found himself resenting Susan's eager compliance. She should have insisted on preparing him a good meal—good from her standpoint—and as a gentleman he could have done no less than show his appreciation by eating it.

For once Joel had lost interest in his own eloquence. Inward voices were protesting against this return to the fare which had satisfied Father Adam. When he retired to the armchair, after dinner, and relapsed into a sulky silence, Susan remembered that the obligation to amuse him was also nominated in the bond. Luckily his tastes were literary, which rendered her task a simple one.

Susan stepped into the tightly-closed, partially darkened parlor which never in sultriest weather seemed wholly to lose the chill of its unwarmed winter days. The center of the room was occupied by a square table, on each corner of which lay a book, the four arranged with geometrical nicety. Susan was too familiar with Clematis traditions not to know that the books on the center-table were seldom of a sort one would care to open, but as she lifted the nearest volume and saw that it was a collection of poems, she felt a comforting certainty that luck was with her.

"You're a great admirer of po'try, ain't you, Mr. Dale? I've always understood so."

With an effort Joel roused himself.

"Another has expressed my sentiments, Miss Fitzgerald.

"'Verse sweetens toil, however rude the sound.'"

"Then if you'd like, I'll read you a little so's to help pass the time." Susan seated herself near the window, cleared her throat and opening the volume at random, began in the self-conscious and unnatural voice characterizing ninety-nine people out of every hundred who attempt the reading of verse.

"'O there's a heart for every one
If every one could find it.
Then up and seek ere youth is gone,
Whate'er the task, ne'er mind it.
For if you chance to meet at last
With that one heart intended—'"

Susan's voice had grown husky. She cleared her throat again. "I'm afraid I made a poor selection," she apologized. "You see I'm not as familiar with po'try as you are, Mr. Dale." She turned the leaves in a confusion that increased as her groping vision stumbled continually on lines startingly sentimental.

"'Let thy love in kisses rain
On my cheeks and eye-lids pale.'"

Susan opened ten pages ahead and tried again.

"'When stars are in the quiet skies,
Then most I pine for thee.
Bend on me, then, thy tender eyes,
As stars look on the sea.'"

Joel's change of position was subtly suggestive of weariness. Susan whirled the leaves and took a desperate plunge.

"'Ask if I love thee? O, smiles can not tell
Plainer what tears are now showing too well.
Had I not loved thee my sky had been clear;
Had I not loved thee, I had not been here.'"

It was plainly impossible for a self-respecting single woman to continue. "Why, they're all silly," she exclaimed, with a little nervous giggle. Her face flamed. What was she to say next, not only to carry out Persis Dale's injunction, but to occupy the blank silence which contradictorily seemed echoing with that fateful refrain, "Had I not loved thee I had not been here."

When in doubt, play trumps. Susan Fitzgerald's chief interest in life was the question of woman's suffrage. And the confusion which had swept her mind bare of small talk, had not jostled her substantial ideas on the familiar theme. She determined to broach the subject delicately and with caution. If Joel cared for discussion, this would occupy a good portion of the afternoon, and be a sufficient antidote for her unfortunate poetical selections. It was even possible that a strong, forceful presentation of the case might result in making a convert. Susan thrilled, realizing what such an accession would mean to the cause.

"Mr. Dale," she began, feeling her way to a tactful introduction. "I am sure you must have a pretty good opinion of women. A man with such a sister as you've got couldn't help it."

Her opening was unfortunate. No man is so reluctant to recognize feminine superiority as the one who profits most by the gifts of some woman. Joel's brow clouded, and his answer showed a cautious resolve not to be trapped into any compromising admission.

"Oh, I haven't anything against women folks. I've always thought the poet went too far when he said:

"'Mankind from Adam has been woman's fools.
Women from Eve have been the Devil's tools.'"

Despite the negative nature of this encouragement Susan continued.

"I'm sure a fair-minded man like you are, Mr. Dale, wouldn't want to keep any woman out of what rightfully belonged to her. You'd want her to have a chance to fill her place in the world, wouldn't you?"

"Why, yes, I'd be in favor of that." Joel's voice was less positive than his words, owing to an inward uncertainty as to the trend of these observations.

"Well, Mr. Dale, there's lots of us that are ready to take up our share of the duties the Creator designed for us. We are standing waiting like the people in the parable that nobody had hired. The trouble is you won't let us, you men won't. We've got to wait for you to give us our rights. All our willingness doesn't amount to anything till you are ready."

A sudden harassing suspicion assailed the target of Susan's eloquence, and no sooner had it entered his mind than a dozen details instantly corroborated it. Joel remembered the look which had accompanied Susan's declaration that he would be an easy man to cook for. The love poems had in themselves been equivalent to an avowel of passion even without her tell-tale blushes. And now at last he grasped the underlying meaning of her vague hints and obscure figures of speech. For though she talked of rights and duties and the designs of the Creator, there could be no doubt that she meant a husband.

Joel rose to his feet and his mute tempestuous indignation was not without interest as throwing light on the workings of the masculine mind. In such a design as he attributed to Susan, it would seem that the lady had much to lose and little to gain. She was vigorous, well-preserved, possessed of a competence, while Joel was doubly bankrupt. Yet his mood was far removed from humble gratitude. He was furious at her presumption, alert to defend his threatened prerogatives, angry at Persis for exposing him to such an attack under his own roof where ignominious retreat was his only safety.

"I've just thought of a little matter I've got to look after this afternoon," he said, his manner nicely calculated to repel any tender advances. "I'll have to hurry along, and there won't be any occasion for you to linger. Please hang the key on the nail so Persis can let herself in when she comes."

His sudden hauteur was not lost on Susan. She sighed as he withdrew.

"Funny how real liberal-minded men won't listen to argument when it comes to some questions. But maybe he'll think over what I said and it'll have an influence sooner or later. Anyway, we've got to be prepared to sow beside all waters."

The leather-covered book, whose failure to serve her purpose was indirectly responsible for the broaching of so delicate a question, caught her wandering attention. She picked it up, reading the title aloud.

"*Love Songs of Many Lands.* No wonder I couldn't find one that was sensible. Well, I declare!"

The book had opened at the fly-leaf. "Persis from Justin," Susan read, bringing her near-sighted eyes close to the faded ink. She pursed her lips and shook her head in disapproving surprise.

"Persis Dale must have known some man pretty well to let him give her anything so pointed. I should have thought she'd have felt awfully embarrassed if she ever read the poems. Justin! Justin! There was a Justin Ware, but I never heard there was anything between them."

She returned the book to the chilly front room, adjusting it to the proper angle on the center-table, as if it had been a part of a geometrical diagram. And finally, after locking the door and hanging the key where Persis, or any other arrival, would immediately notice it, she turned her downcast face toward home.

"I'm afraid I hurt Mr. Dale's feelings. It beats all how sensitive some natures are. It's lucky I didn't get as far as what you would call the real telling arguments."

If Susan Fitzgerald's mood was despondent, as she reviewed the activities of the day, such was not the case with Persis Dale. In the Trotters' shabby cottage, exaltation reigned. Young Doctor Ballard, lean and boyish, looked ready to be congratulated on a good piece of work, though perfectly aware he could never in this world, at least, collect his fee for medical attendance. Bartholomew's complacent self-importance almost straightened his bowed shoulders and redeemed the weakness of his sagging lips and feeble chin. Lizzie, his wife, spent and pallid, her gaunt temples hollowed and her face chiseled by suffering, smiled contentedly as she lay against her pillow, a creature lifted for the moment above the petty weaknesses, pitiable fruit of life-long and grinding poverty, by the gracious dignity of motherhood. As for Persis, as she carried the new arrival down-stairs to make the acquaintance of his brothers and sisters, her comely face was radiant. Weariness was forgotten. The hours of uncertainty, the long hours when Life and Death matched forces in that old duel renewed with each new existence, had all been forgotten. For a man was born.

The little Trotters gathered around in an ecstacy of pleasure and surprise. In a household where food was scanty, and every new pair of shoes was a serious economic problem, there was no lack of welcome for the newcomer. Chirpy little voices commented on the new brother's surprising pinkness, his diminutive proportions and his belligerent fashion of clenching his fists.

"He's got on the nice clean dress the angels made him," said Winnie, the observant. "See the lace in the sleeves."

"I wish the angels had made him some hair instead," suggested Wilbur, plainly aggrieved. "'Cause he could have worn some of our old clothes, but he can't wear our hair."

"He can have my jack-knife when he gets big enough," declared Benny, the oldest of the flock. He drew the cherished possession from his pocket, as if ready to surrender it on the instant. And that offer was a signal for a general outburst of generosity.

"He can have my tooth brush."

"I'll give him my rubber boot. Maybe when he's big enough to wear it, somebody will give him one for the other leg."

"You're going to let the new baby have your high chair, ain't you, Essie?" Thus Winnie prompted the sister now compelled to relinquish the honors and dignities attaching to the post of baby of the family. And Essie, nodding her little tow head, laid a rose-leaf cheek against the crumpled carnation of the newcomer. "Nice litty brudder," she cooed. "Essie loves 'oo."

"My gracious me!" thought Persis Dale, as she tucked the baby into the battered cradle, never long without an occupant. "It's queer that we ain't shaking our heads and groaning over this. The Trotters can't afford a new baby any more than I can afford a steam yacht. There ain't enough of anything to go around, and yet we're all holding up our heads and acting as if this was the best day's work we ever had a hand in. It's no use talking. Down in our hearts we know that life's a good thing, even when we've got to take poverty and hardships along with it. And that's why we start in singing Psalms in spite of ourselves when a new baby comes."

(*Continued next issue.*)

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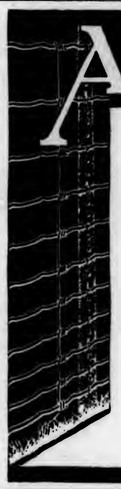

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LIVE STOCK & DAIRY

Edited by W. H. TOMHAVE

Handling Brood Mares

The care and handling of brood mares that are to foal during the spring is of vast importance at this time of the year. There is always danger of injuring the mare so that she will abort, but this danger is very much increased at this time of the year on account of so much ice on the roads. An unusual strain on a mare that is well along toward foaling may cause her to lose the colt. The same thing is true driving them over slippery roads when they are not well shod. Driving mares over rough places on the farm is also dangerous and risky on account of the pole striking the mares on the side and injuring the developed foal so that it is prematurely born and usually dead. While this may seem like a simple and generally known precaution, the farmer can not afford to take chances with his brood mares when the foals are so near developed.

In many cases the brood mares are not worked, as there are enough other horses on the farm, and the mares can be rested. This is probably a good practice when there is danger of injuring the mares, but such generous treatment is often not conducive to the development of strong, vigorous foals. The brood mare should have plenty of exercise in one form or another to keep her in good physical condition. Exercise lots of sufficient size and free from rough places should be provided, if the mares are not worked. It is probably better for the mares to be used for light work if care is taken not to abuse them. When such a plan is followed the mares will get regular exercise and will also get better care in the matter of feeding and brushing. The proper feeding for brood mares is often overlooked during the winter. This happens because they are not doing regular work, and the temptation comes to save on the feed bill. Even though the mare may not be working, she requires a certain amount of food nutrients to keep up the condition of her own body. In addition to this, she must supply the food material necessary to develop the growing fœtus. This drain upon the body of the mare is especially heavy during the last three or four months of the gestation period. It also requires feed well supplied with protein to build up the bone, muscle and connective tissue of the colt. Too many colts are born weak because of improper feeding of the brood mares. A grain ration made up of six parts of corn, six parts oats, three parts bran and one part of oil meal or cotton seed meal makes a desirable grain mixture. This should be supplemented with a good quality of mixed or clover hay. The amount to feed will depend upon the condition of the mare and the amount of work she performs daily. She should be kept in a good, thrifty condition, and kept gaining slightly in weight.

Champion Shropshire Ewe at 1916 International

Forage Crops Will Reduce Swine Feed Bills

Owing to the high price of grain feeds of all kinds, the farmer will be confronted with the problem of reducing the cost of keeping his brood sows and developing the young pigs during the spring and early summer. He can help to solve this problem by the use of forage crops. While it is not possible to keep the swine entirely upon forage crops, it will save on the feed bill. It will also keep the swine in better condition than is possible when they are kept in a dry lot.

If a crop of rye, wheat or vetch has been planted, it can be used as soon as there is sufficient growth to supply a small amount of feed. While this kind of pasture does not furnish a large amount of feed, it supplies a green feed when it is most needed. It will also supply enough feed to make it worth while pasturing.

As soon as the land can be worked in the spring, a field should be sown to Canadian field peas and oats. These should be planted at the rate of 1½ bushels of oats and 1 bushel of peas per acre. This will be ready for pasturing about the time the rye or wheat becomes too far advanced. The best time to turn the pigs into this pasture is when it is about 8 to 10 inches high.

About two weeks after the Canadian field peas and oats have been planted, it is well to plant a field to oats and rape for early summer pasture. The oats are put in at the rate of 1½ bushels per acre, and the rape at the rate of 4 to 5 pounds. This mixture makes a desirable combination, as soon as the other pasture has been used up. The oats will not last very long, but the rape will keep growing and supply pasture well into the summer. Successive fields of rape should be planted at different intervals during the summer. The rye and wheat field can be plowed, as soon as it can no longer be pastured, and planted to rape. Use from 5 to 8 pounds of seed per acre. In seeding rape for swine pasture, be sure that you get the Dwarf Essex seed, as it is the only kind that will do well as a forage crop.

Any other forage crops, such as clover or alfalfa, may be made use of as pasture for swine, and a material saving of grain feed can be made

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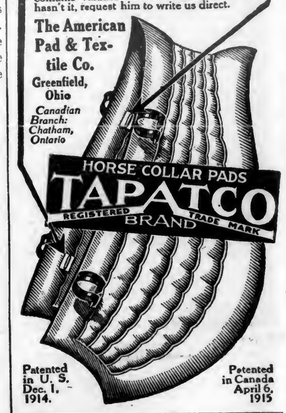

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More Interest in Sheep Raising

For the first time in ten years there has been no decline in the number of sheep in the state, but the campaign for more sheep has resulted in not only overcoming an annual decrease of 25,000 sheep in the state but has brought about an actual increase of between 5000 and 6000 sheep according to statistics just announced by the Pennsylvania Department of Agriculture.

Annually there has been a decrease of 3 per cent. of the sheep in the state, but the unusual efforts put forth during the past year have resulted in creating a new interest in the sheep industry and many farmers have added flocks while fewer ewes have been sold. Through the Department of Agriculture hundreds of sheep have been brought into the state and despite the high prices farmers throughout the state are trying to secure sheep to undertake breeding.

It is estimated that there are now about 812,000 sheep in the state as compared with 806,000 a year ago and there promises to be a steady increase during the present year.

The counties showing the most notable increases are Washington and Greene, the two big sheep counties of the state. In each of these counties the increase was 4 per cent., or over 10,000 sheep. Wyoming county showed an increase of 6 per cent., and Delaware 5 per cent. Other counties showing increases were: Blair, Bradford, Chester, Clearfield, Dauphin, Fayette, Forest, Fulton, Indiana, Juniata, Lancaster, Mercer, Montgomery, Potter, Snyder, Union, Venango and Warren.

The better protection of the sheep from the ravages of the dogs under the provisions of the Act of 1915, and the splendid prices offered for sheep and wool were incentives to encourage the sheep industry. The Pennsylvania Department of Agriculture sent veterinary experts into other states to examine and purchase sheep for Pennsylvania farmers and many were brought into the state.

During the past year the average price of sheep per head has increased from $5.40 to $7 and the average price of wool from 25 cents to 34 cents per pound. The price of sheep is now much higher than the average for the year, few being obtainable for less than $9.

Exports of Horses and Mules

The exports of horses and mules have at last passed the million mark. The official figures given by the Department of Foreign and Domestic Commerce U. S. A., show that during the twenty-seven months ending December 1, 1916, 1,029,961 head of horses and mules, valued at a total of $216,941,912, were actually exported from the United States, most of these going directly to the European war territory. Purchases are still continuing at a heavy rate.

In the judgment of the most experienced market men fully 75 per cent. of the horses sold abroad for artillery and transport work have been grade Percherons produced by crossing Percheron stallions on the common light mares in this country.

Stock Breeders Aided by New Rulings

Live stock shippers and breeders east of Chicago who have in the past been compelled to pay on an arbitrary and unreasonable maximum weight when shipping animals in less than carload lots are benefited by decision of the Interstate Commerce Commission in Docket No. 6825, which case was won by the National Society of Record Associations last July and went into force December 1, 1916. Since that time stallions can be shipped at a weight of 3000 pounds instead of 7000; ordinary horses at a weight of 2000 pounds instead of 5000; bulls at a weight of 2000 pounds instead of 5000; mare and colt or cow and calf at a weight of 2500 pounds instead of 5500. Other weights are scaled down in proportion.

Any shippers who were compelled to pay at the higher weights since December 1, 1916, can recover claims against the railroad companies without difficulty by merely presenting the facts and calling the attention of the agent to instructions laid down in supplement No. 14 to Official Classification Tariff No. 43.

Furnishing of attendants with shipments of live stock l. c. l. is now left with the shipper and no railroad has authority to require an attendant with shipments of live stock in less than carload lots. Animals may be shipped at their true values in the case of valuable breeding animals by the payment of an increase of 4 per cent. in rate for each 100 per cent. increase in value of the animals over the basic values fixed in the tariffs, which are on file in each railroad station.

Interstate Milk Producers' Meeting

Between three and four hundred dairymen, or their representatives, from New Jersey, Pennsylvania, Delaware and Maryland attended a meeting of the Interstate Milk Producers' Association held in Philadelphia, February 7. Hon. J. J. Dillon, New York Commissioner of Foods and Markets, Dr. Clyde L. King, chairman of the Tri-State Governors' Milk Commission, and Hon. Gifford Pinchot, of Washington, addressed the gathering, which was presided over by Frank P. Willits, president of the organization.

Mr. Dillon, in his address, reviewed at length the history of dairymen's attempts at co-operation in New York State which finally resulted, eight years ago, in the formation of a dairyman's league with a present membership of 14,000. He also told of the workings of the "supposed" milk trust in setting prices to both producers and consumers and driving small dealers out of business. All efforts to better these conditions had failed in the past because there was only a gentleman's agreement between the producers, and enough would withdraw whenever it appeared best to them, so that the whole movement would fail. Last fall, however, after nearly 90 per cent. of the producers shipping milk to New York had paid 25 cents per cow and signed a contract to sell only through the league, the executive committee gave Mr. Dillon the sale of the milk. The victory which he won for the New York farmers is still fresh in mind, but the one cent a quart which he obtained over last year's prices is the least part of it. The most far-reaching result of the controversy is the inspiration it has given to farmers all over the country to lose some of their "glorious independence" and stand together as all other interests do to obtain their just rights.

In the opinion of Mr. Dillon, what the Philadelphia producers need most of all is a more complete organization. One

SHARPLES
SUCTION-FEED PATENT
and what it means to you dairymen

The new SHARPLES patent, one of the broadest process patents ever obtained, covers any separator that will ***skim clean at all speeds.*** It covers the ***process*** of varying the feed in proportion to the centrifugal (separating) force. No one else can, for 17 years, make and sell such a separator.

You know of the tremendous losses caused by all fixed-feed separators because they are never turned full speed. More than 4,000 investigations ***proved*** that 19 out of 20 operators turn their separators ***below*** speed most of the time. Purdue Experiment Station Bulletin No. 116 ***proves*** that the loss from slow turning amounts to from 7 to 13 lbs. of butter per cow per year—or the appalling loss of 80,000,000 lbs. of butter yearly in America alone!

Skims Clean at *Any* Speed

So we realized that it was far from sufficient that a separator ***could*** skim clean when properly handled. It was vitally necessary that it ***would*** skim clean—even when improperly handled. That's SHARPLES, which sucks in just as much milk as the centrifugal force can perfectly handle—and ***no more.*** The result is ***clean*** skim at all speeds and ***unchanging*** thickness of cream.

All separator makers ***know*** of this tremendous loss and some ***admit*** it in their advertisements. They ***cannot*** stop the loss (because SHARPLES basic patent covers any separator that will skim clean at all speeds) so they try to ***warn*** against it by putting on a sight speed indicator (on which the operator's eyes must be glued every moment and his muscle must respond instantly to the indicator's ***prod*** for more speed)—or a bell indicator (which, like the fire alarm, gives notice of damage only ***after*** it is done). All such devices have proven ***failures,*** time after time, because few operators can stand being prodded or yelled at whenever the speed slackens.

A bell ringing device is truly an acknowledgement of the vast ***superiority*** of SHARPLES which automatically ***prevents*** all losses from uneven turning instead of simply announcing them.

Simple Tubular Bowl—*No Discs*

Not a single piece is added to accomplish the wonderful "Suction-feed." And the SHARPLES was ***already*** by far the ***simplest*** and easiest to clean. We realized that it was not enough that a separator ***could*** be kept clean—it must be so simple that it ***would*** be kept clean. So the ***patented*** SHARPLES Tubular Bowl contains ***no discs*** or blades—it is just a plain, light, steel tube. No other separator can use it.

All other separators must contain discs or blades to skim at all. Their makers wrangle between them as to how many discs, and if curved or straight, and how the milk should be fed into them. They constantly change their designs without getting nearer the ***ideal.*** Some use more discs, many of them boast of using less. Such boasts plainly acknowledge that "the fewer discs the better."

The ***ideal*** is SHARPLES which has ***no discs at all.*** But this ideal is a SHARPLES patent.

Important to Dairymen

So all SHARPLES patents assure ***you,*** as a SHARPLES user, of ***larger*** profits and ***greater*** convenience than the other man gets. The knee-low supply tank, single ball bearing in oil, slow and easy crank speed, freedom from the tyranny of fixed speed, increasable capacity, easiest cleaning, automatic oiling without oil cups or oil holes—all these are ***your*** advantages ***exclusively,*** because they are exclusive SHARPLES features.

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planned not only for this year and next, but one which will have a continuous existence, no matter who is at the head of it, and strong enough to keep on advancing no matter what happens. It must not be built on the ability or reputation of any one man, but be a movement which progresses even if some of the units fail. It should be organized under state co-operative laws, so that each member has equal voice regardless of the number of cows.

It is proposed now in New York to organize a selling and a buying bureau in the league. It is hoped that a man will be placed at the head of the selling bureau who is an expert in his line and that the salary will be sufficient to command the best obtainable. The selling should not be left to the officers as there would be no one to check up results. If a selling agent is hired, the officers can keep tabs on the work. It is thought that the establishment of a buying bureau can save in one year more money for the producers than they have made in the last five years. This can be accomplished by going to the feed producing centers and buying in the largest quantities possible. In New York they are also working on a plan to sell milk through grocery and delicatessen stores, bearing in mind that 2 cents a quart saved to the consumer amounts for the city, in a year, to 18 million dollars.

Gifford Pinchot, who has recently been elected president of the Pennsylvania Rural Progress Association, spoke briefly of conditions which are liable to present themselves after the present European war. Those countries have formed national organizations of producers in all lines, which will not be quickly disorganized at the close of the war. When we come face to face with this national efficiency, in his opinion, it will mean that we will fall into control of the trusts or develop co-operation ourselves strong enough to overcome the opposition.

Clyde L. King, of the University of Pennsylvania, gave a summary of the 85-page report which the Governors' Commission recently presented as a result of their investigation and which has been reviewed before in The Practical Farmer.

Salt for Dairy Cows

From one to two ounces of salt daily, in accord with the amount of milk produced, is sufficient to meet all requirements of a dairy cow on rations of ordinary feeds, according to Dr. E. B. Forbes of the Ohio Experiment Station. In nutrition studies with cows milking as much as 45 pounds daily and fed common feeds, he found that one ounce of salt a day satisfied the cow's needs

New Jersey Dairymen Organize

Much interest was shown by the dairymen of New Jersey at the State Board of Agriculture meeting at Trenton, when the New Jersey State Dairymen's Association was formed. An executive committee was appointed which will represent the interests of the dairymen for the coming year, it being the duty of this committee to formulate plans whereby each county may be represented in all state dairy problems. The following men were appointed to act on this committee: W. W. Titsworth, of Sussex county; Daniel Y. Lewis, Bergen; F. T. Torbett, Passaic; John W. Hendrickson, Mercer; John V. Bishop, Burlington; W. W. Shute, Cumberland, and William Hackett, Salem. The committee appointed Mr. John W. Bartlett, extension specialist in dairying of the New Jersey State Agricultural College, to act as secretary.

Record of Dairy Sire is Best Basis for Selection

The modern dairy cow is bred so far away from the wild cow of nature that it is only by continual selection that the production of our herds can be maintained at the present level, to say nothing of increasing it. The only practical ways for most farmers to greatly improve the production of their herds, according to C. H. Eckles, of the Missouri College of Agriculture, are to cull out the inferior cows and introduce the best possible blood through the sire. The old saying that the sire is half the herd is literally true from the standpoint of herd improvement. The sire selected should first of all be a pure-bred of the breed to which the cows belong. Cross breeding does not pay, and in the end is disastrous to the herd.

The age of the bull, so far as known, has nothing to do with the characteristics he transmits. The advantage of the mature bull is that generally it is possible to see some of his daughters and in this way judge as to the character of his offspring. In buying a young bull the pedigree with records of his ancestors are the chief things to take into account. The mother of the sire selected should have the characteristics wanted by the breeder. As a rule, those who buy bulls now require that the dam have an Advanced Register test which gives exact information as to her dairy quality. If the mother of the bull is one of a large group of high producing sisters, the chances are especially good

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that the characteristics will be transmitted. This would indicate that the animal in question belongs to a high-producing family.

It is not wise to select a bull from a cow even with a wonderful record if she is the only good animal in her family. In this case she is a freak in her family and will probably transmit not her own high milk production but the average of the family to which she belongs.

Our Live Stock and Dairy Special

In our last issue we called attention, on page 48, to the fact that our annual Live Stock and Dairy Number would be March 15th, and that we are offering $38 for the four prize winning articles in that contest. It is still not too late, if you get to work at once, to send us an account of your experience with live stock of any kind on the farm. To win a prize an article need not necessarily be long, the essential fact must be that it contains information which will be of value to others. A careful reading of the eight prize articles in our Horticultural and Poultry Specials will give you a good idea of what is wanted.

Queries Answered

Sheep Fence.—L. J. H., Pennsylvania, asks us: "Would barbed wire make a satisfactory fence for sheep? I want to fence 40 acres and want the cheapest fence I can put up. How many strands are necessary?"

Barbed wire will not make the most satisfactory fence for sheep, but it can be used. The fence must be well built and sufficient strands used to keep the sheep from crawling under A 4-strand fence, with the lower wire from 6 to 10 inches from the ground, will keep the sheep from getting out If other live stock is to be kept in the same enclosure it will be necessary to add one or two additional wires on top to keep the stock from getting out.

A more satisfactory fence for sheep and other live stock is one made of woven wire reinforced with a couple of strands of barbed wire. A 26 or 30-inch fence with two strands of wire above, while more expensive, makes a better fence for sheep. T.

Feeding Corn and Tankage.—A. F. S., Jr., New York, writes and asks us: "Will you kindly tell me the proper amounts of corn and tankage to feed a sow seven months old? She has just been bred and weighs close to 200 pounds; a grade Berkshire."

The proper proportion of corn and tankage fed to brood sows is a mixture of ten parts corn and one part of tankage. This grain mixture should be fed in such amounts as will keep the sow in a good thrifty condition. In the case of young sows, they should be constantly gaining at the rate of from one-half to one pound per day until they reach maturity. In the case of mature brood sows, they should be gaining slightly in weight from the time they are bred up to the time of farrowing. Corn and tankage makes a very desirable grain mixture for brood sows.

Lung Worms.—E. B. M., Pennsylvania, writes: "We have shoats running with feeding cattle; weight 50 lbs. They have a cough; what is the cause and remedy?"

The young shoats which are following the steers in the feeding lot are no doubt affected with lung worms. These worms are usually found in the tubes leading to the lungs. Their presence will somewhat interfere with the thrift of the shoats, but there is really no danger, as they are not serious enough to cause bad results, especially if the pigs are kept in good, thrifty condition. There is usually more trouble from these worms when the sleeping quarters and surroundings are dusty. It is regarded as a desirable practice to sprinkle the sleeping quarters with a light crude oil. There is no satisfactory treatment for the lung worms.

Quite frequently the pigs are also affected with intestinal worms, which have a tendency to keep them in poor condition, and lacking in thrift. If such is the case, it is a desirable practice to give them a turpentine treatment, which should be given for three days in succession. Feed should be withheld the night before the treatment is given, and the next morning give about a teaspoonful of turpentine mixed with a small amount of milk for each 80 pounds of live weight. T.

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Clean milk commands top prices. But, to produce "Class A" milk, you must have sanitary stables and milk houses.

Natco Hollow Tile walls are the last word in sanitation. Do not hold odors or moisture.

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Build with Natco Hollow Tile

Unequaled for all farm buildings. We have practical plans of many types. Tell us what you plan to build; we will help you—free.

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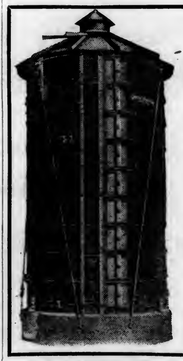

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CORONA WOOL FAT is readily absorbed by skin and hoof, penetrates to the inflamed inner tissues and

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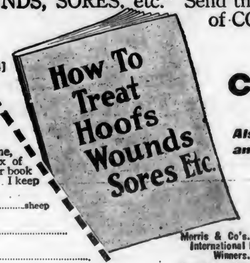

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OUR GARDEN NUMBER

The Practical Farmer

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Gardening for the Family Hamper Trade

By J. W. GRIFFIN
(FIRST PRIZE ARTICLE)

TRUCK gardening as a side line at Athtonia Farm has proved to be one of the best paying propositions on the place. There are about 50 milch cattle and 10 or 12 head of work horses and mules. The cows and work animals are fed the very best and richest food, consequently there is an abundance of splendid manure, the one essential in gardening.

In laying out the plat for the truck garden a location was selected where an exposure to the morning, noon and afternoon sun was to be had. The hotbeds and cold frames are located where the sunshine hits them early in the day. There are about 6 acres in truck, small fruits and vine crops. The garden is tile drained, consequently at no time are there pools of water extending over the vegetables to form a crust or to scald them out.

The manure is composted by piling in large, low, flat-topped piles, one year in advance of its application to the gardens. Just as soon in the fall as the last of the late planting of beans, turnips and winter radishes are harvested the well rotted manure is put on at the rate of about 75 loads of a ton or more to each acre. This is scattered evenly over the ground and turned under as soon as possible after being scattered.

The following page shows the lay-out of hotbeds. The cold frames will occupy the space next to them. The cold frames have no bottom heat and are used only to transplant tomatoes, eggplants and sweet peppers into and to start the plants of cucumbers, cantaloupes, watermelons and summer squashes or cymlings. Ten-inch planks are set up in rows 5 feet and 8 inches apart—just wide enough to accommodate two widths of common cotton cloth as a protection for the plants against frost and insects. On these cold frames are used paper dirt bands and combination pot and dirt bands.

For the earliest plants of cabbages, tomatoes and eggplants a transplanting from the seedling flats is made into 2-inch square paper pots arranged in a second hotbed, then just before the plants begin to crowd each other in these 2-inch pots they are shifted to 4-inch paper dirt bands previously arranged in the cold frames. Here they develop rapidly and by the time it is safe to put them out in the open many of the plants are in bud and blossom. The difference between the dirt bands and paper pots is, the dirt bands have no bottoms and the pots have. Four-inch paper pots are used in which to plant the early cucumbers and other vine crops. By using these dirt bands and paper pots we get the start of the open ground plantings about four to five weeks, thus securing fancy prices for our truck, and getting a hold on the best run of private customers.

Asparagus comes first on our list of best paying vegetables, with Palmetto as our favorite green, and Columbian Mammoth White as our white variety. The Palmetto is grown in shallow beds that produce green tips, and the Columbian Mammoth White is heavily mulched each winter with manure and this is made up into a deep bed in early spring, up through which the tender stalks push themselves. They are cut about five inches below the surface as the tips make their appearance.

We find Burpee's Stringless Green Pod and the Improved Round Pod Valentine to be the best green snap beans for general planting, with Kentucky Wonder pole bean planted in the corn for a summer bean, and the old "Cut Short" as a standby for late fall snap beans. Of the limas the Fordhook bush and King of the Garden pole give satisfaction here in the Ohio Valley.

Cabbages—Early Jersey Wakefield, Charleston Wakefield, Copenhagen Market and Danish Ballhead planted in the order named give us a succession that has proved O. K.

Beets—Crosby's Egyptian and Detroit Dark Red for early and mid-season, with Crimson Globe as main crop, bring in the change.

Cauliflower—We plant but two varieties, Early Snowball and Dry Weather. Each of them does well when given proper attention

Carrots—Earliest Short Horn is the money maker for forcing and

The Telephone Saves the Modern Gardener Time and Labor, Opens New Markets and Keeps Him Posted on Prices

first planting in the open ground, but for the main crop Danvers Half Long Orange is the best we have found out of all varieties tested.

Celery is one of our principal specialties. Golden Self-Blanching and White Plume for summer and fall, and Winter Queen for late keeping, give us varieties that have proved profitable.

Cucumbers—From the Davis Perfect we get fine slicing fruits and for picklers and cukes for mixed pickles the White Spine is planted.

Sugar corn—For roasting ears we plant Golden Bantam and Country Gentleman, two of the aristocrats of the sweet corns.

Eggplants—Early Black Beauty gives us the earliest fruits, but Black Pekin outyields it for main crop.

Lettuce—We have not been able to find anything better than Grand Rapids and Big Boston; these give us both quantity and quality.

Muskmelons—We plant only for home use the Rocky Ford and Fordhook.

Watermelons—Just enough for home use of Kleckley's Sweets and Halbert's Honey.

Onions—Prizetaker seed is planted in hotbeds in February and transplanted to the open ground when the seedlings reach the size of a lead pencil. For pickling we plant Barletta.

Sweet peppers—Ruby King and Golden Dawn, two varieties in great demand for stuffed pickling and to cut up for mixed pickles; both varieties are heavy croppers.

Parsley—A long permanent bed of Moss Curled parsley, about five hundred plants, affords a generous supply, enough to make up our ¼, ½ and ¾-bushel home hampers. Just a small bunch is placed in each, as much as 10 or 12 leaves.

Parsnips—Hollow Crown is the best we have tried.

Okra—We plant the White Velvet and Improved Long Green, as we have customers for each variety.

Peas—We make but two plantings, one very early, with Alaska, the smooth variety, and just as soon as the soil is warm enough for the tender wrinkled variety, we make a heavy planting of the following varieties: Nott's Excelsior, Premium Gem, Abundance for dwarf, and Telephone and Dwarf Champion as stick peas. These are all planted while the soil is yet cool, and in time for the vines to get a good root system established before hot weather. Poultry netting is used for the tall varieties.

Potatoes—Irish Cobbler and Early Ohio for white, and Nancy Hall for sweets, are favorites with our customers, and we aim to grow what pleases them.

Radishes—French Breakfast and Crystal Forcing for the hotbeds, with Icicle and Cincinnati Market planted at intervals of ten days throughout the season give us a supply of nice, crisp and attractive specimens.

Squashes—Golden Summer Crookneck and Delicious are the best for summer and winter in this section.

Tomatoes—Chalk's Jewel and Improved Stone are fine varieties.

Turnips—Purple Top Strap Leaf and White Milan give us satisfaction.

Last year (1916) there were many failures among gardeners around here, due to dry weather, but we have hydrants located at different parts of the garden from which the whole garden may be watered as it needs it. All planting and transplanting is done in freshly stirred soil and cultivation begins just as soon as plants get well started. All weeds are killed just before they come to the surface. All vegetables are put up in new, clean hampers and nothing but clean, plump and good shaped specimens are marketed. We make a specialty of the family home hampers. Orders are received by 'phone and by mail. One-quarter-bushel hampers sell for 50 cents to $1.50, ½-bushel $1 to $2.50, and ¾ bushel $1.25 to $3, according to the assortment of vegetables ordered. All vegetables are sold by weight and are put up in neat paper sacks, placed carefully in the hampers and kept in a cool room until delivered. The vegetables are picked and prepared for market the day before they are to be delivered. A motor truck has been arranged to haul 200 assorted sized hampers. The truck is started about daylight and reaches the first customers about suntup. Packages for the most distant parties are loaded first. A card bearing each customer's address is fastened to the hamper with a small wire. The hampers are not defaced by marking or writing names on them. Seed required to plant the 6 acres runs on an average about $40 per year, besides the potatoes, which bring the cost up to $60. Gross sales in 1916 were $3800, and after deducting the expense of labor, insecticides, seeds and fertilizers, which was $1845, we had a clear profit of $1955, or a little over $325 per acre. System and particular attention to the little things, such as prompt and regular deliveries, attractive packages and fresh vegetables are some of the secrets of success in market gardening. Indications are that this year will be a profitable one for the trucker.—*Kentucky.*

View in Mr. Griffin's Garden Showing Location of Hotbeds and Cold Frames

SECOND PRIZE ARTICLE

My Way of Gardening

PERCY H. TUCKER

UP here in southern Rhode Island spring breaks in earnest about March 20. The first thing we think about getting in is our "frost-proof" cabbage. We buy these plants from a Philadelphia seedsman. They are grown on islands along the coast of South Carolina and the gulf coast of Louisiana. The soil and climate conditions seem to be just suited for growing tough, hardy plants. If one is not used to them he will be inclined to throw the first lot in the dump. The buds are purple and the leaves are reddish brown and yellow, but they will mature ten days to three weeks sooner than hotbed and cold frame plants. We order half of Jersey Wakefield and the other half of Charleston Wakefield. By the time the Jerseys are marketed the Charlestons are ready. We use from 25 to 40 loads of stable manure to the acre and also put on a few hundred pounds of ashes. It pays to manure liberally. We plow the ground as soon as the frost is out. We set them 15 to 18 inches apart and the rows 30 inches apart. Our later varieties are planted farther apart, anywhere up to 3 feet each way. Our winter cabbage is planted the last of May and set about the first of July. When winter comes they are stored in the cellar, roots and all.

We retail our produce, so we grow nearly everything. Very soon after our cabbage is in we plant our garden. All of our beets, spinach, lettuce, radishes and carrots are planted in rows 12 inches apart. The early spinach is off in time to set our peppers. We make successions of planting once a week until it gets so warm it gets wormy. Then we plant the New Zealand; it makes its best growth in the warm weather. We never saw any insects or blight ever trouble it. We make a planting of radishes every ten days. There are a number of fine varieties but we use Vick's Scarlet Globe for a standard. Lettuce seems to be a nice crop. Along in the early spring every one seems to have it, but a little later it commences at 30 cents a dozen and works up to a dollar as the season advances. For extra early we plant Grand Rapids; it is of the loose leaf sort but gets around early. For later varieties we plant Black Seeded Tennis Ball and the Perfected Salamander. Lettuce seems to thrive best on very rich soil. It seems to need constant hoeing. If there are no weeds a potato digger will loosen up the ground as well as a hoe and much quicker. We usually plant about half an acre of carrots. Rotten stable manure is very good. Green manure seems to have a tendency to grow roots. We plant them in rows 12 inches apart by 2 to 3 inches in the rows.

In Mrs. Anderson's Garden. *See Article on Page 92*

One of the best paying summer crops we find is sweet corn. It does not require the time other garden truck does, and time is a big item in these days of scarce and high priced labor. We always risk a piece a little earlier than we really think best. Corn seed is not very expensive and sweet corn seems to be a crop that the "early bird catches the worm." We always have the first in our section of the country. We commence selling at 25 cents a dozen and keep dropping until it gets down to a cent an ear. We find Premo about as good a variety as we have ever tried. A great many people crack up the Golden Bantam, but our trade don't demand it, so we never plant it. Usually we plant on sod ground spread with stable manure and a few hundred pounds of ashes or phosphate. We usually plant three grains every 15 to 18 inches in the row, later varieties a little farther apart. We plant the rows 3 feet apart. Squantum seems to be a standard late variety.

Peas sell well enough but it is a job to pick them. We plant about three pecks each season. We used to plant several varieties, but now only plant the Thomas Laxton and Gradus. The hard peas seem to have gone out of favor; we can hardly sell them, so we stopped growing them. They thrive best with us on fair manuring. We furrow out the ground, then sow the phosphate, or hen manure if we have it, in the furrows. We cultivate it in thoroughly and drop our seed with a hand drill and cover just light enough so they will not dry out. When they get up high enough we fill in the furrows. Then they seem to be down where the moisture is and it has a tendency to make them stand upright.

A crop we depend on quite a lot is turnips. We ship them to Providence in the winter. They net us anywhere from 55 cents to $1.50 per bushel, depending on the season. Our favorite turnip is the Macomber. It is not known very well out of New England, having originated on Cape Cod. It is the best turnip, by all odds, grown in this section of the country. It is firm, white and smooth and of the best table quality. It matures quickly and is a good winter keeper. We try to get them in about the middle of July. Rye is a great crop to plow in for them. Ashes harrowed in seem to give them a good start. We harrow and harrow the ground until it is as fine as it can be and not a lump left in it. We plant the rows about 30 inches apart by 6 inches in the row. It takes constant stirring of the ground to keep them growing.

Although we do not compete with the Maine farmers, we plant about an acre of potatoes every year. Our favorite potato is the Irish Cobbler. A great many say they do not cook well, but with us they pop open before they are hardly done. We like to plant them on clover sod. One year with another they will produce 250 bushels to the acre. It is pretty good for an average, but take it the country over and the farmer earns what he gets, and sometimes he earns what he don't get.—*Rhode Island.*

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EDITORS
THOS. H. WITTKORN W. F. MASSEY W. H. TOMHAVE
A. E. GRANTHAM CHARLES A. McCUE
F. V. L. TURNER J. H. REED
EDWARD T. WALKER, Managing Editor

SPECIAL REPRESENTATIVES
J. C. Billingslea, 119-123 W. Madison St., Chicago.
708 Kresge Bldg., Detroit, Mich.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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MARCH 1, 1917

"Safety First" for Farmers

WE have often wondered why it is that city people who, as a rule, have adequate police protection, do not want country people to enjoy the same security. The chief opposition in New York State to the establishment of a state police, similar to the one in Pennsylvania, comes at the present time from organized labor. These men, nearly all of whom reside in cities, seem to forget that families in the country have the same value as families in the towns and are entitled to the same consideration. Records in Pennsylvania show that on an average only one day per man per year is spent by the state police in the suppression of labor disorders, and that during 364 days out of the 365 in the year they patrol the rural districts, giving security and peace of mind to the country people by the presence of a force which is ready to meet any emergency.

In the few cases where labor disturbances have occurred the union leaders have declared that it was not their men, but outsiders, who caused the trouble. In which case it seems that organized labor ought to welcome a state force which would help it uphold its position as a body of law abiding citizens. Nobody in the city fears a policeman except those who either have committed or contemplate committing crime. Why should any organization seek to prevent the establishment or betterment of a force to maintain law and order unless it fears that some time its members may break the law? It is always well to keep your eye on the man who poisons your watch dog!

We have reason to feel proud that only within the last few days a captain of the Pennsylvania State Police appeared at the public hearing in the Senate Chamber at Albany, New York, in behalf of the establishment of a force in that state. For more than an hour he stood the severe "grueling" of the labor leaders and answered satisfactorily all the charges they brought against the workings of the force in this state. It seems strange that the New York State Grange at its recent session failed to come out in favor of this proposed legislation. It is understood that Governor Whitman will sign the bill if it reaches him. Pennsylvania farmers have often expressed their approval of the force in their state and many instances could be cited where their presence has been a crime-preventive.

The Practical Farmer advocates the establishment of a state police, similar in organization to that of the Pennsylvania State Police, in each of the Middle Atlantic States, and for Pennsylvania an increase in the appropriation to permit the extension of the force to make it even more effective. At the present time when the economic position of the farmer is being brought forcibly to the attention of the urban population it ought to be easy to make the city man see that the providing of adequate protection for the country people is the least that could be done in solving the ever-present problem of making rural life more profitable and enjoyable.

This "Garden Special"

EACH year we have a "Garden Special" not so much with the idea of benefiting our readers who always have good gardens as with the hope that we may possibly instill a little garden enthusiasm into the large number of farmers who we believe are not taking full advantage of their opportunities.

It is a recognized fact that there is no other equal area on the farm which will produce so much to provide a living for the family as a well kept garden. We have visited too many farms where the garden was considered to be only another care for the already overworked wife, and it did not enter the calculations of the man of the house except at meal times.

Last summer a member of our editorial staff searched without success a large section of Berks county, Pennsylvania, for a farmer who would supply him with a regular family hamper shipment of fresh vegetables similar to the plan described by Mr. Griffin in his excellent first prize article in this issue. There ought to be lots of opportunities to find a profitable outlet in this way for the surplus of any farm garden. Regular customers could easily be found upon inquiry among town friends who would agree to take regular shipments by parcel post, express or delivery on regular trips to town. Some truckers on Long Island have developed this idea as a special feature of their business.

The best garden is not necessarily the largest. You will note from Mrs. Anderson's third prize article that her area was not large. Still she made all the space count and secured better returns than the average. The small seed drills and wheel hoes now take much of the hard work out of a small garden and at the same time make it possible to effectively handle a larger area.

Many farmers still purchase a large part of their winter living in cans at the grocery store. This is a crime when one considers that with only a little land and use of the modern cold pack home canning methods, just as good, and in many cases better, winter supplies can be had at practically no cost. A truly successful garden provides sufficient surplus by the storage of roots and canning of greens and perishable vegetables to last all the year round. Garden conservation methods through canning are wonderful.

Undoubtedly this year city and town gardens will prove popular. Lots of them will be started with all good intentions, but when the real work of cultivating and fighting blight, fungus, insects and weeds comes around many amateurs will resign in favor of the professionals.

We believe that this year more than any other will be an excellent time to have a good garden. European nations at the present time, through necessity, are forced to secure the cheapest food values and are learning more and more each day of their dependence on vegetables.

Utilize Your County Agent

HAVE you had a visit recently from your county farm bureau man or have you taken your particular farm problem to him? He is working in your vicinity, if you live in one of the 1260 counties in these United States which now have representatives in them, primarily for you, and if you fail to take advantage of him the loss is yours. Of course, none of them know everything, possibly some don't know as much as they should, but it is always well to remember that two heads are better than one. Granting that you know more about your own business than the county agent does, wouldn't it be possible for him to carry an idea to you from a distant farmer who knows more, possibly, than either of you? Remember always that ideas are the material out of which progress is made.

Every once in a while somebody tries to express in figures the value of a county agricultural agent. Only recently a banker in Iowa presented figures which showed that in four years the man in his county was worth in cash $1,438,470. Seven such figures, or even more, can never express the value of the work which a good man accomplishes. The greatest successes have been attained where community interests have been aroused, boys and girls given a new view of agricultural life, parents infused with greater enthusiasm for their work and as a secondary consideration increased profits have resulted through the application of better methods.

Before starting your work for the coming year why not talk over your plans with the farm bureau representative. He has the advantage of not having worked on your farm from year to year and can possibly see opportunities which have never occurred to you. If you do "stump" him with some of your problems he has your state agricultural college to fall back on, and if it cannot meet the difficulty the Federal department at Washington surely can overcome the obstacle.

Cultivation for Water Conservation

OUT West where water has to be bought and paid for through irrigation its value is appreciated and careful experiments have been conducted as to how to make the best use of it. Recently tests made in California show that by two cultivations it is possible to save 26 per cent. of the loss due to evaporation during twenty-eight days following the application of the water to the soil. Here in the East where we have forty inches of rainfall during the year we sometimes do not appreciate our blessing, and often fail to make any attempt to save it for the growing crops. We have grown away from the old idea that the main reason for cultivating corn is to kill weeds and if there are no weeds no cultivation is needed. The idea now is to have, at all times, a blanket of loose soil on top of our cultivated fields to prevent the escape of water which will be needed later for the growing crop.

Science has also taught us that cultivation of corn to be effective need not be deep—in fact, the old-time method of going down as far as it is possible to drive the cultivator teeth not only cuts off innumerable roots of the plant whose growth we are trying to hasten, but it is hard on the team, tools and operator, and by turning up the moist under soil allows the water to evaporate from it.

Bulletin Helps for Farmers

Persons who are interested in knowing just what good the recent national legislation regarding farm loans is able to do should send for Farmers' Bulletin No. 792, entitled, "How the Federal Farm Loan Act Benefits the Farmer." This is a 12-page bulletin and a careful reading of it will clear up a lot of questions frequently asked regarding the work of this new system.

One of the essential things required under the new loan act is that the borrower be able to give detailed statements of his business. This means that some system of accounting must be practiced. Farmers' Bulletin No. 782, "The Use of a Diary for Farm Accounts," describes a helpful way for keeping a record of farm operations. It contains 18 pages and is clear and concise.

Farmers' Bulletin No. 779 contains 26 pages and is profusely illustrated on the subject of "How to Select a Sound Horse." It ought to prove valuable to the owner of one or a hundred horses, as the demand today is for high-class horses.

"Goose Raising" is the title of Farmers' Bulletin No. 767, and it not only describes the various breeds of geese, but treats of their selection and mating, incubation, feeding and marketing.

Dairymen will be interested in Farmers' Bulletin No. 777, which treats of "Feeding and Management of Dairy Calves and Young Dairy Stock." It tells not only the correct method of raising calves on skim milk, but gives a list of milk substitutes. The whole 20 pages are brimful of information for the man who wants to raise young stock.

All Farmers' Bulletins mentioned above are issued by the Department of Agriculture at Washington, D. C., and will be sent free to all who ask the Secretary of Agriculture at Washington to send them a copy. Each bulletin also contains a list of others on correlated subjects which are available for free distribution.

Realizing the great interest which has developed in sheep raising and its possibilities in the Middle Atlantic States, Pennsylvania State College has recently issued a bulletin on "The Maintenance of Breeding Ewes of Mutton and Wool Sheep." This represents the results of their investigations of this subject since December, 1911, from which they have drawn forty-two concluding facts which are valuable to every sheep owner. The bulletin will be sent free to anybody addressing the Experiment Station at State College, Pennsylvania.

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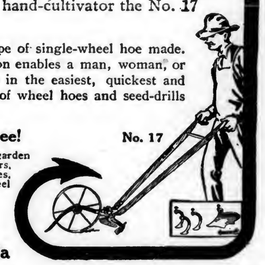

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THIRD PRIZE ARTICLE

The Value of a Small Home Garden

MRS. E. M. ANDERSON

Last summer my garden produced so abundantly and was, in some ways, so unusual that it may be of interest to other gardeners. When I began trucking independently I supposed most vegetables required more room than I have ever accorded them since, simply because I had heard that they did. My plan may seem to crowd things a little, but if weeds are kept out so that all the space is available, the returns from a given area cannot but be greater than if more space were allowed; and the labor of keeping vacant places clean is practically eliminated. We find it a perfectly feasible plan, as well as a very economical one, to alternate tomatoes with cucumbers in the same row, especially on the least productive end of the garden. In this soil neither grows to an unusual size, though both bear well. I planted a row of onions directly across my cucumber hills; some one may object to this arrangement but most people think nothing of having as many weeds as I have onions among the cucumbers, and both seem to thrive gloriously. From 50 feet of row I harvested nearly a bushel of ripe onions, and if the cucumbers suffered they did so very patiently. My peas were supported by poultry netting, which saves space and also allows them to produce nearly double the amount they would if left to sprawl on the ground. Less than 50 feet of row, comprising both early and late varieties, supplied the table for five of us as long as their season lasted. Forty feet of beet row—not my best row, either—produced over $2 worth of marketable beets for bunching, and the only criticism ever given them was that they were too large, though we heard nothing more about that after our customers had tested the quality. From my little onion patch we bunched and sold green onions on the market for more than a month, and later I sold about $6 worth of ripe bulbs, and we have used, and are still using lots of them every day. My carrots would probably have conflicted with my cabbage but for the fact that the adjacent row of cabbage was early so that we began cooking it in July and continued to cook or sell until it was gone. My late cabbage practically covered the ground at maturity, and why should it not? My brother-in-law raises acres of it that does the same. During the summer I bunched and sold carrots until the row was sufficiently thinned, but I wanted the balance for winter chicken feed, and in the fall I pulled whole crates of them measuring better than 17 inches around, Oxheart variety, for table use. I will admit, though, that I let them grow until they were hardly dainty table size —they hang better on an inverted nail in my poultry house.

Besides supplying the table for five of us for more than a month, my seven rows of sweet corn produced more than 50 dozen ears, of such size and quality that the street market snapped them up like gold nuggets at 20 to 30 cents while others were selling at 15 cents a dozen. My asparagus was certainly a picture; this was only its second summer, but we had an abundance for our own use throughout the cutting season and I confidently expect a good crop next year. Many of the stalks attained mammoth size and we shall fertilize well this winter again.

My account book shows $25.01 to the credit of my little plat approximately 40x80 feet, and this sum represents only marketable surplus, for we reserved every bit of everything we could possibly use ourselves. Very little figuring is required to see that this was better than $300 per acre. Of course, if more had been raised it would have been sold because we had already used all we could.

I have never yet planned two gardens exactly alike, for two reasons—first, I can usually think of some improvement during the growing season, or some vegetable I want to add or omit next year; and second, very few things succeed as well planted on exactly the same spot year after year. My garden plan for the coming season is fully prepared, but I submit the previous plan because I have actually harvested the garden and can state positively just how it worked out.

No doubt some one is wondering why many common vegetables are omitted from my plan—the reasons are legion—my hens persisted in eating up my lettuce and I finally set cabbage in place of it; we eat so few radishes that I drop them in anywhere; we don't eat turnips at all, and if any one wonders about beans—so have I, all winter. They were simply omitted from my brain. I had a lot the year before that didn't sell, so I guess I effaced even the memory thereof. Having studied my market for a season, I shall add Swiss chard, parsley and cauliflower to my list this year. All vines—pumpkin, squash and melon, will be relegated to my corn field this year, also. I put them on a dry knoll in the orchard last summer and they were practically a failure, as were all the vines in this section—frankly, I don't know why, neither the state experiment station nor the county farm bureau gave us a very satisfactory solution. Some of my cabbage had "cabbage yellows" and they, too, shall "seek new pastures." If that fails I shall conclude that all my soil is "cabbage sick," and buy disease-resistant seed hereafter. Vegetables sell well at present, but I should continue to raise them if they didn't sell at all—nothing furnishes more healthful and enjoyable occupation or adds more to the health of the family.

New York.

—80 feet—
—12 feet—

4 rows asparagus, rows 2 feet apart, plants 18 inches apart.
3 rows set onions, rows 1 foot apart.
7 rows sweet corn, rows 2 feet apart, hills 2 feet apart.
2 rows late cabbage, rows 2 feet apart, plants 2 feet apart.
1 row early cabbage, rows 2 feet apart, plants 2 feet apart.
1 row carrots, 1 foot from cabbage row.
3 rows seed onions, 1 foot from carrots and 1 foot apart.
1 row late beets, 1 foot from onions.
1 row seed onions, 1 foot from beets.
1 row early beets, 1 foot from onions.
30 feet of cabbage, 50 feet of peas, row 2 feet from beets.
Tomatoes and cucumbers with onions, row 3 feet from last.

$1150 F. o. b. Racine
Mitchell Junior—a 40 h. p. Six
120-inch Wheelbase

Mitchell SIXES

$1460 F. o. b. Racine
7-Passenger—48-Horsepower
127-inch Wheelbase

A 40-Year Car
Yet Not Strong Enough

A New Standard

This year, for the first time, we announce in the Mitchell 100 per cent over-strength. That is, twice the needed strength in every vital part.

Under our former standards the margin of safety was figured at 50 per cent. And that was considered extreme.

Two Mitchell cars, built under old standards, have already exceeded 200,000 miles each, or 40 years of ordinary service. Seven cars that we know of have averaged over 175,000 miles each.

Then why this doubled standard?

For a Lifetime Car

The object is a lifetime car.

We feel that the Mitchell is standardized. Neither type nor style is likely to greatly change. So our entire plant has been equipped to produce this one type economically.

John W. Bate, our efficiency engineer, spent a year in Europe just before the war. He consulted with engineers there. They were aiming at double strength, based on European roads.

Since then, part by part, he has brought the Mitchell to a like standard, based on American roads.

What About Lightness?

For years the talk has been lightness. That is a good principle but a bad fetish. We believe that it went too far.

With present steel prices, a too-light car means a big saving. So there is reason to defend it.

John W. Bate has not sacrificed lightness where other methods could prevent it. Steering parts, axles, bearings etc., are made oversize. But most of this 100 per cent over-strength comes through costly steel.

Over 440 parts in the Mitchell are now made of toughened steel. All parts which get a major strain are made of Chrome-Vanadium. We pay for steel used in the Mitchell as high as 15 cents per pound.

How Do We Know?

Mr. Bate has worn out fifty cars in proving needed strength. He has tests for each important part to prove the double strength.

Every gear is tested. One gear in each hundred is crushed, to prove that the teeth will stand 50,000 pounds.

Steel is made to formula. Then it is analyzed. And every part made from it must pass tests for strength.

We do not know, and may never know, how long a Mitchell car will last. But we do know its comparative endurance.

And we know that parts where weakness generally shows seem all-enduring in Mitchells. For instance, springs. Bate cantilever springs, with this double strength, have been used two years in Mitchells. And not one leaf of one spring yet has broken.

Other Mitchell Extras

The Mitchell has now 31 extra features which nearly all cars omit. They are features which cost us, on this year's output, about $4,000,000.

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Also An $1150 Six

Note that this year—to meet a wide demand—we bring out Mitchell Junior. A slightly smaller motor—a little shorter car. And a lower price than the 7-passenger Mitchell. But more powerful and roomy than most 5-passenger cars. So men can get the Mitchell now in either size they want.

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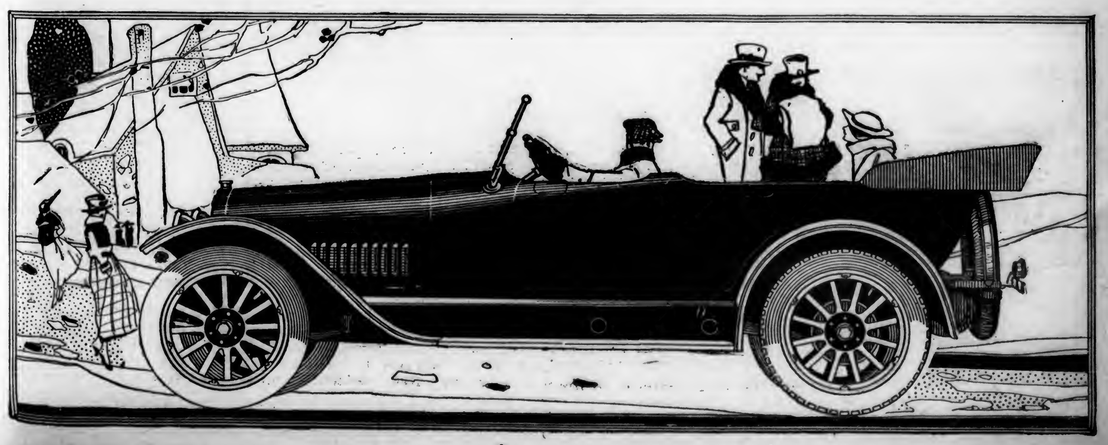

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FOURTH PRIZE ARTICLE

My Garden—My Hobby

MRS. H. A. MASON

If one should ask me from what source I derive my greatest pleasure I should unhesitatingly answer, "my garden." Not only do I get pleasure from it, but health and profit also.

When I first began housekeeping three years ago I knew little about gardening or general farming. My husband's business kept him away from home so much that it was imperative that I should learn, so one of my first acts was to subscribe to several reliable farm journals and they have been of untold help to me. I read eagerly all of the articles on the raising of all kinds of vegetables. These I cut from the papers and pasted in a scrap book for future reference, and even now, when I forget how a certain thing should be planted, fertilized or cultivated I have but to refer to this book, always finding just what I need.

My garden spot, consisting of about one-half acre, is an old one, and already well enriched. When I came to it it was midsummer and nothing had been planted the previous spring. Having to do without fresh vegetables so long made me all the more anxious that such a thing should not happen again. I diligently read my farm journals and when fall came I knew just what to do. In November my garden was plowed and a space of about 20x40 feet was harrowed and made into a good seedbed for the following seeds:

Four rows, about 18 inches apart, of potato onions; four rows of large white Marrowfat peas; two rows of Big Boston lettuce; two rows of Early Jersey Wakefield cabbage. The plants of the last two having been previously raised from seed sown in a rich bed the latter part of July, were set in a well fertilized open furrow, to mitigate the injury done by the constant freezing and thawing that goes on throughout the winter in our climate.

On a flat strip about 2 feet wide I sowed broadcast spinach seed, and I must not forget that close up beside the garden fence I planted a long row of sweet peas, also in an open furrow.

All of my seed came up beautifully, and by the last of November had grown considerably. I now covered the whole of the garden, plants and all, with a thick layer of fine stable manure. I then felt that my garden had been put comfortably to sleep only to awaken when the first bluebirds began to sing, and I betook myself to the comfortable fireside to read more farm papers and plan my spring campaign. The one thing necessary, it seemd to me, was the hotbed, and I got into a perfect fever to make one. From the advertisements in one of my journals I found a place where I could get two sashes, 3x6 feet each, with glass for them, for $3.10. This I immediately ordered and in a few days it was covering my hotbed, which I had made in the following way: On the south side of my kitchen, where the sun shines all day, an excavation 6x6x2 feet was made. This was boarded up with inch planks of oak and a piece of studding 2x4 was put down the middle to hold the sashes. In the bottom of this was put one foot of fresh stable manure, which had a few days previously been put in a pile and turned each day, that it might heat evenly. This was packed well in the bottom of the bed, and about 4 inches of rich black soil was put on top of it. This was left for several days in order that the heat might subside a little. By the middle of February it was ready for the seed and in it I sowed the following: Bonnie Best tomato, Copenhagen Market cabbage, Prizetaker onion, Black Beauty eggplant, and Ruby King pepper. These seeds came up nicely, and while I was watching them grow I had my garden put in order for the first planting. This was done by harrowing in the manure and making an application of acid phosphate at the rate of 1000 lbs. to the acre, which also was harrowed in. By the time the frost was out of the ground I began to plant my early vegetables, the seed of which had already been bought. After looking over the seed catalogues and again referring to my farm papers as to the best kinds I decided on Early Ohio potatoes, Early Alaska peas, followed by Gradus for a succession, Early Red radish, Hanson lettuce, Early Egyptian beets, Southern Giant Curled mustard and Champion Moss Curled parsley. These seemed to me the first things to get into the ground and they were all put next to the fall-sown seed, in order that after they had produced their crops the ground might be cleared and prepared for later ones.

Early Vegetables and High Prices Result from a Little Ingenuity

I had been able to get in a few rows of Early Ohio potatoes during an open spell in February, and these came in several weeks earlier than my main crop of Irish Cobblers. My neighbors were all anxious for new potatoes, and I made a nice little profit selling some of these. The other seeds I have mentioned I did not get in the ground until March.

My fall-sown seeds were growing nicely, and the first thing I ate from my garden was spinach, followed by onions and lettuce as beautifully headed as any I ever saw. Of this I shipped ten boxes, each holding one dozen heads, which more than paid all of my fall work and the seed planted. The Hanson lettuce which I planted in March was to follow this. This variety makes a fine summer lettuce because it is slow to shoot to seed.

By this time, the middle of April, some of the plants in my hotbed had grown so that they seemed to be crying to be taken out and put into more roomy quarters. With stiff paper and pins I made little boxes 2x2 inches. These I filled with rich earth and into them I put tomato, eggplant and pepper plants for the purpose of hardening them before putting them in the open ground. These little boxes I set in a frame which I covered with canvas at night and on cold days. It was now warm enough for most of the tenderer seeds to be sown, so I made the following selections, all of which proved to be good: Snap beans, Burpee's Stringless Green Pod, which I planted every two weeks throughout the summer; lima beans, Wood's Prolific bush lima and Ideal pole lima; sugar corn, Bland's Extra Early, followed by Country Gentleman and Stowell's Evergreen; Cymling, Early White Bush and, for winter use, Hubbard squash; Early White Spine cucumber; Kleckley's Favorite okra; Half Long Danvers carrots; Mammoth Sandwich Island Salsify.

From these seeds I selected those that took the whole season to mature their crops, and planted them in an out-of-the-way part of the garden, where they would not interfere with the planting of later seed.

Early in May my hotbed plants were ready to be transferred to the garden, and about this time I made a rich outdoor bed in which I sowed Winter Queen celery and Stone tomatoes for canning. I let the celery grow along in the bed, cutting it back twice, to make the plants stocky, until July, when I set them 6 inches apart in a deep furrow, in rows 3 feet apart. When this had grown enough for the outer leaves to begin to lie flat on the ground I began to pull the earth up to it, which I continued as it grew, until late in the fall the rows were well banked up, and covered with straw to keep from freezing. All during that winter I had the most delicious celery I ever ate, and as its culture is very unusual in the majority of farmers' gardens, I was able to sell much of it in my own neighborhood. A good gardener in almost any community will be able to find a ready market for her surplus vegetables, for after the first spring planting few farmers pay any attention to their gardens. From the surplus of my first garden I canned plenty of all kinds of vegetables to serve me throughout the following winter.

In the two succeeding years I have enlarged my garden, using the same methods and planting the same kinds of seeds in large enough quantities to enable me to sell, last year, 500 jars of vegetables, put up from what was left after using them abundantly, and selling quantities of them in their fresh state.

I have also increased my number of hotbeds, and established quite a business selling plants to my neighbors.

Of course, this garden, that gave me so much pleasure, meant a great deal of hard work also, but then everything worth while does, and with the aid of a 15-year-old colored boy I was able to do it all and have plenty of time for rest and recreation, too.

Virginia.

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Garden Suggestions for March

W. F. MASSEY

Fertilizer for Potatoes

A North Carolina reader says, "We have been advised to make a fertilizer for Irish potatoes by the following formula: 600 lbs. ground limestone, 500 lbs. 16 per cent. acid phosphate, 700 lbs. cotton seed meal, and 200 lbs. nitrate of soda. What do you think of this?" My opinion is that it is a very poor mixture. In the first place, lime on Irish potatoes is apt to make conditions favorable to the growth of the scab fungus, which will make unmarketable potatoes. In the next place, lime will start the nitrification of the cotton seed meal and release ammonia, and it will revert the phosphoric acid and make it less available. Then if no harm happened to be done to these materials the mixture would be very low grade, with too little phosphoric acid for potatoes in proportion to the ammonia used. There will be but a trace of potash in it from the cotton seed meal, and lime can not take the place of potash. You can make a far better fertilizer by mixing cotton seed meal and acid phosphate in equal amounts. This will give you about 3.65 per cent. ammonia, 8 per cent. phosphoric acid and 1 per cent. potash, and in the present scarcity of potash you can not make a better fertilizer. For potatoes, if your land needs lime, use it liberally all over the land and harrow it in well, but apply it in the preparation of some other crop than Irish potatoes, and never on any account mix lime or limestone in a fertilizer containing materials with nitrogen in organic matter like cotton seed meal. If farmers would always consult their experiment stations they would get the best advice in regard to the making of fertilizers, for the stations have the best of chemists on their force, and would never advise you to mix lime in a fertilizer.

Early Beets

Here, too, the market men cater to the city buyer's eye. They grow the Early Egyptian beet, because it is early and dark red in color and has a top that makes it easy to bunch, for the city people want a dark red beet. For home use I find the old Bassano far better in quality than the Egyptian, but its light color and big top condemn it for the market. There are other early beets better than the Egyptian. The Eclipse is good, red and keeps in good quality, while the Egyptian rapidly loses quality after its first growth, which is good. The Egyptian is all right as soon as large enough to bunch, but when grown large it is very poor in quality.

Cantaloupes and Cucumbers

It is best to prepare the land and make the hills ready for these some time before planting time. Our large market growers here always prepare their land and get the manure in during January, as they can only buy fresh manure and

(Concluded on page 102)

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HORTICULTURE

Edited by C. A. McCUE

Pruning Apple Trees

All young or bearing apple trees should be pruned at this time. Heavy pruning of young trees is harmful and if excessive will delay fruiting. However, in the case of an irregular or one-sided tree heavy pruning may be necessary to get the tree into shape. Until trees come into bearing, prune just enough to keep the trees in shape. Remove all cross branches which tend to develop into main limbs, but do not practice rubbing off all small spurs. Tip back only the main leaders when they are making excessive growth at the expense of the other leaders. In pruning bearing trees cut out dead, diseased or broken branches, is the advice of L. G. Gillam, a New Jersey specialist in fruit growing. Remove crossing and interfering branches. Unless the central leader type of tree is desired keep the centers and tops of trees open to admit sunlight. Shorten back the main leaders where they are growing too high or spreading too far, cutting back each time to a side shoot. Remove all suckers from the center of the trees and from other limbs except where they are needed to fill out a limb or side of the tree. Remove all very low hanging branches which will interfere with cultivation.

Growing Christmas Trees

E. J. JOHNSTON.

For the farmer with some waste land, not having timber on it, and yet not cleared for farm crops, there is an opportunity to make money by growing Christmas trees. Trees 18 inches to 2 feet are used for the small child's tree, or as a centerpiece for the table. These are dug with the roots, so that they may be potted by the buyer, and sell readily at 25 cents each.

These little trees may be grown from seed, or the seedlings may be purchased. If raised from seed by the farmer he will, of course, have to wait longer for returns, and spend considerable more labor. Seeds should be sown in the spring, and they will require shelter from the direct rays of the sun and will need watering from time to time. While the seedlings grow readily under artificial conditions, they are, nevertheless, comparatively tender. If thinned to 6 inches apart each way they may remain in the seedbed for two years. They should be transplanted several times before placing in their permanent location, and will require some cultivation at this stage. Any grower who cares to raise his own seedlings will find the forestry department of his State College available for information as to their care.

On the other hand, seedlings 10 to 16 inches may be purchased from various nurseries for about $15 per thousand, and in two or three years the trees will be ready for market. Norway spruce is the variety most sought after by the Christmas trade; they are perfectly hardy, and are best suited to the Middle Atlantic States. Other evergreens could be used, however, if they were more readily available. The bulk of these seedlings are imported from Europe. Experienced growers find that the loss by transplanting these imported trees is not more than 3 or 4 per cent. All things considered, most farmers would probably find this plan the best.

These seedlings should be planted in the spring 2 feet apart, taking about 5000 to the acre, at a cost of $75 for the trees. In three years one-half of these should be dug and sold for 25 cents each. This will leave the balance 4 feet apart, and these may be sold in three or four years more at 50 cents each.

Allowing for loss, counting the original investment, and the cost of labor for transplanting and digging, which, of course, will vary in different localities, it is readily seen that a handsome profit per acre is the result. It will require six or seven years to realize on the entire investment, but the returns for that time should not be less than $1200 per acre. Some growers have found it so profitable that the superintendent of one large nursery says that he would plant 50,000 of these seedlings on his own farm, in addition to what he has, if he had the time.

These live trees can be kept by the buyer, in pots during the winter, by merely supplying a little moisture and light, and keeping them where the roots will not be frozen. In the spring they may be transplanted outside, and a permanent addition is made to the home grounds.

Pennsylvania.

Protection Necessary for Good Orchard Crops

Most of the orchard insect pests can be controlled by simply applying good orchard management. One of the most pathetic sights about a farm is a neglected home orchard, which often becomes so overgrown with weeds, sprouts and briars and so clogged with brush and other rubbish that it may resemble second growth timber more than a real orchard. In such a case the orchardist's first job is to clean up the orchard, which will also eliminate many insect foes. The brush burners come in handy for this work.

In the orchard, broadly speaking, we have two groups of insects; those which are beneficial, including the bees and lady beetles, and those which are more or less injurious. The beneficial forms should be protected, while the injurious ones should be combatted. Of the injurious forms some are controlled by general orchard management, including clean culture, pruning and cultivation, while others can be reached most effectively by applying sprays or other insecticides.

Some insects feed by extracting sap with a piercing beak, as the scales and plant lice, while others chew and swallow solid material, as the caterpillars and beetles. Consequently two kinds of insecticides are needed—those which kill by contact, for the sucking types, and stomach poisons for the chewing types. Leonard Haseman, of the Missouri College of Agriculture, says that the poison and contact solutions may be mixed and both applied at the same time. Likewise a fungicide for controlling the diseases of fruit is combined with the insecticides "to kill two, or more, birds with one stone."

If San Jose scale is present in the apple orchard, a strong contact spray should be given during the dormant season. Commercial concentrated lime-sulphur diluted with about eight parts of water makes an ideal spray for this pest and it also helps to destroy other orchard pests. Spray thoroughly so that each scale is soaked, otherwise those escaping will reinfest the tree the next summer.

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Conducted by A. E. GRANTHAM

In this department will be answered questions relating to soils and their improvement, field crops and the use of lime. Questions should be addressed to the "Soils and Field Crops" department, care of The Practical Farmer, Philadelphia, Pa.

The Growing of Field Beans

Owing to the present high price of field beans considerable interest has been aroused in many sections concerning the culture of the crop. Field beans usually sell for $1.50 to $2 per bushel, but have brought as much as $6 to $8 during the past winter. The bulk of the bean crop is raised in New York and Michigan, but with care can be produced in many other sections. A word of caution should be dropped here, and that is a warning against going into the culture on a large scale in a new and untried locality. While it is true that beans are produced in nearly every garden, yet when it comes to growing the crop for the mature product on a large scale many other factors are to be considered.

Field beans do well on loams or clay loam soils. Very often they are produced on heavy clays. A moderately stiff soil, naturally well supplied with potash and phosphoric acid will give the best results.

The bean is very sensitive to cold, hence should not be planted until all danger of frost has passed. They do not require a long season, and plenty of time may be taken in preparing the soil. Early plowing is best, except where a green manure crop is to be turned under. In the latter case a fair growth should be secured before turning the land. If the land is turned early it should be worked at intervals to destroy weeds until planting time. The ground should be plowed as deep as for corn and worked down so that it has a good surface mulch of fine soil. The planting should be done as late as possible and still allow the plants to mature before frost. It has been found by growers that the late-planted crop is less affected by certain diseases.

Field beans are usually planted in rows, which may vary from 28 to 36 inches. Thirty inches is the usual distance. The seed is spaced from 2 to 4 inches apart in the row. The ordinary check-row corn planter may be set so as to drop the beans in drills. Often the ordinary grain drill (preferably the disk drill) is used. The proper distance between rows is secured by stopping certain delivery tubes. If the ground is in good order the grain drill is an excellent machine for drilling, as it does not leave the surface of the soil so packed as some corn planters.

It is a common notion that beans do not require a good soil, yet the composition of the crop indicates that it requires a good supply of phosphoric acid and potash. Fertilizers that are used for cereal crops will be found to give very good results. Soil that is very rich in nitrogen tends to produce vine at the expense of seed production. In most cases, especially if manure has been applied the year previously, no nitrogen need be applied. The fertilizers should not be applied directly with the beans. Either drill in the fertilizers before planting the beans or run the fertilizers only in the tubes on each side of the one delivering the seed. This is easily done with the grain drill. On land that is manured fairly well in the rotation an application of 200 to 300 pounds per acre of 8 per cent. phosphoric acid and 2 to 3 per cent. potash will be satisfactory. If potash is not available use at least 10 per cent. phosphoric acid or its equivalent.

The quantity of seed required per acre depends on the size of the beans. The Navy or Boston pea bean is rather small and two pecks are sufficient to plant an acre. With the marrowfat or kidney beans three to four pecks will be required.

The depth of planting is determined largely by the character of the soil and season. In clay soils the depth should be very shallow, not more than one to two inches, as difficulty is often experienced in getting the beans through such soil, particularly if it is packed by heavy rains. On lighter soils the depth may range from 2 to 3 inches.

Cultivation should begin early and consist of shallow workings. Much labor is saved if the land is put in good order before planting, as the plants may then be allowed to get a fair size before it becomes necessary to cultivate them. Cultivators with narrow teeth which stir the soil to the depth of 2 to 3 inches are desirable. Care should be taken not to cultivate beans while they are wet with dew or rain, as this tends to spread disease if present. At the last cultivation the bean rows may be slightly ridged, as this will facilitate the work of harvesting if done by the bean harvester. The plants should be kept free from weeds, as these reduce the yield and interfere in harvesting.

On account of the nearness of the pods to the ground a special bean harvester is used to cut the plants. This consists of two long steel blades so set in a frame as to cut the roots of the plant just below the surface of the ground. This prevents cutting and breaking the pods. The machine is followed by men with pitch forks, who throw the bean vines in small piles for drying. When cured the vines are stored in barns for threshing. The ordinary horse rake is often employed in bunching the beans, but there is some loss from shattering of the pods.

Oats as an Emergency Hay Crop

At this season of the year inquiries are often received concerning what crop or crops to sow for supplementary hay. For one reason or another the acreage of grass may be poor and the owner is desirous of making sure that he has sufficient forage for the summer and early fall. There is no better plant than oats for an early hay crop. The work of preparing the soil and seeding does not coincide with that of corn. The oats may be cut about the first of July or even earlier in this latitude. It is not necessary for the oats to mature—merely to reach the milk or dough stage of

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the grain—before cutting. Cut at this time the entire plant, when properly cured, is very palatable, equaling high-class hay in feeding value. The sowing of oats for this purpose provides for the seeding of clover and timothy which may have been omitted in the fall. If the oats are not sown too thick and are cut at the stage of maturity indicated above the clover will have a much better chance for making a good growth than where the oats are allowed to ripen the grain. Oat hay is quite popular in dairy sections, where it is sometimes combined with Canada peas. The peas have reached such a price at present that the combination will be rather expensive if the locality is not well adapted to the growing of Canada peas. In conclusion, it is safe to say that there is no other spring crop that can be as readily grown for early hay as oats. Then, also, the land may be used, if necessary, to grow a catch crop of cowpeas or soy beans south of the latitude of Philadelphia.

The Distribution of Labor on the Farm

The largest single item of expense in operating a farm is labor. With the increasing difficulty of securing labor on the farm comes the problem of handling help so as to make it most efficient. It is evident that considerable diversification of crops must be followed if the largest returns are to be secured for the year's work. No matter how profitable a single crop may be there is a limit to the quantity that can be produced by a given amount of labor. In most cases only a small fraction of the season can be devoted to one crop. Hence it follows that a succession of crops should be used so as to engage the labor for the greatest number of days. The kind of farming that keeps the men, horses and machinery busy for the greatest number of days per year is likely to show the largest returns. The pay of the men, the keep of the horses, and the interest on the investment in machinery together with its depreciation, are items of expense that can be overcome only by a carefully prepared cropping system. This leads directly to the question of diversified farming. The practice of growing several crops on the farm is the natural outcome of trying to provide labor for men and horses throughout the season. It is more difficult to provide a schedule of busy days for horses than for men. We often hear the farmer criticised for not abandoning the common grain crops and going into the more intensive specialized culture of some particular crop. Among the reasons why he does not make such a radical departure is because of the poor distribution of labor in a one-crop system. The present high prices for farm products will tempt many to engage in the growing of the more intensive crops on a scale that is not practical because of labor. The man who thinks he can grow an acre of tomatoes or potatoes as easily as he can an acre of corn, may produce the crop but will generally find that the labor required in harvesting the corn is much more evenly distributed. It requires as much horse labor and man labor to grow and harvest one acre of tomatoes as is required for 5 acres of corn. The corn crop has the advantage in that the period of harvesting is extended over a longer period. Also, more of the labor on the corn crop may be done by machinery.

It often happens that a crop is grown, not so much because it is highly profitable, but for the reason that it furnishes a more complete distribution of labor. For example, the oats crop is not considered a very remunerative one in most sections, yet the labor connected with the preparation of the soil and seeding comes at a time when other labor is not pressing. The oats seeding generally comes just before plowing for corn. Where wheat is grown in the rotation it is harvested before the oats demand attention. In a similar manner Red clover alone is a desirable hay crop, since it is harvested before the wheat is ready to cut. Oats and timothy often coincide in time of harvesting. One of the reasons alfalfa is not more popular on some farms is that the period of harvesting comes at a time when other crops demand attention. The problem of the farmer is to plan such a diversification of the more profitable crops adapted to his section so as to use the labor to the greatest advantage for as many days in the year as possible.

How a Pennsylvania Farmer Saves the Labor of One Man

The distribution of labor is not the only advantage derived from diversified cropping. There are fewer chances of entire failure of crops or poor returns from low prices if a number of crops are grown.

It seems that the farm of the future must be organized in such a manner as to provide labor throughout the year. The old practice of engaging help only during the crop season has resulted in making it more and more difficult to secure labor. It is no wonder that men are leaving the farm when other industries are offering work the year around. There is a class of labor that prefers to work on farms, providing they can be employed by the year. In many cases this problem is partially met by providing the help with a house and garden. Even then the enterprises on most farms are not so arranged as to give productive labor during the winter. The solution of this problem may result in the keeping of more live stock on the farm, particularly poultry and dairy animals. Most farms might well increase slightly the number of cows and hens kept and still not make these special lines. The returns from the animals will assist in paying the labor and should show some profit. The manure produced by the keeping of more stock is no small item in the economy of the farm. It appears that the plan of providing labor throughout the year will be more or less of an individual problem for each farmer. Until some such organization of farm work is effected it would seem that labor conditions will be unsettled. Of course, the keeping of help throughout the year demands careful planning of the kind of crops to be grown and the utilization of high class machinery. If the size of the farm will permit, large units in the case of horse implements, as plows, harrows and cultivators should supersede the two-horse outfits. With the better implements of today one man can do the work of two, providing he has the horse power.

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OATS SENSATION record 123 bus. per acre. Also SEED CORN. Samples and catalogue free. Theo. Burt & Sons, Melrose, Ohio.

Many Farms Need Lime

The use of ground limestone or some form of lime to sweeten sour soil has become a regular farm practice. The reasons for this were given by R. A. Kinnard, of the Missouri College of Agriculture in a recent lecture. Soils which were originally poorly supplied with lime and even limestone soils have lost so much of the lime which they formerly contained that crops suffer from soil acidity. The continuous leaching to which soils in the humid regions are subjected and which is greatly increased by cultivation is largely responsible for this loss of lime. The greatest soil acidity, therefore, is in those soils which were originally poorly suplied with lime and especially in regions where the land has been cultivated a long time with little attention to soil fertility.

Not all crops are injured by an acid soil, but unfortunately most important cereals and forage crops, especially clovers and alfalfa, cannot be grown successfully on a very acid soil. Acidity is indicated by the failure of these crops and by luxuriant growth of red sorrel, Canada blue grass and water grass.

To sweeten an acid soil, a sufficient amount of finely ground limestone or slaked lime must be scattered evenly over the plowed ground and worked into the top soil. Ground limestone is usually the cheapest and most satisfactory in general, though it takes effect more slowly than quick lime, slaked lime or hydrated lime, and a larger quantity must be applied to get the same results. The screenings from an ordinary rock crusher can be used. Coarser material has little immediate effect in the soil, but if a much larger quantity of the coarse material is used it will keep the soil sweet for a longer time. Screenings can be obtained at from 25 cents to $1 a ton. In some cases where hauling from the railroad is expensive and where limestone is accessible, small grinders can be used to grind the limestone on the farm.

Re-Seeding Alfalfa

Inquiries are frequently received by the agronomist of the New Jersey Agricultural Experiment Station as to whether it is advisable to seed alfalfa on the bare spots in a field, or to thicken up an old stand. In old fields of alfalfa, where the plants have had several years' growth, seeding in this partial stand is not successful in most cases. The older plants overshadow the seedlings, which are placed at so great a disadvantage that they seldom can succeed in the competition with the larger plants for food, water and light. However, if bare spots occur in fields which were freshly seeded in the preceding fall, it may be possible to thicken the stand by re-seeding these spots early in the spring. The re-seeding can be done at about the time of the spring seeding of clover, when the ground is honey-combed with frost.

Queries Answered

Legumes in Delaware.—H. B. D., Delaware, writes: "When is the best time to sow winter oats in lower Delaware? How much do you sow and what is the yield per acre? Which silage is best, corn alone or corn and cowpeas, half of each? Can we grow soy beans in lower Delaware successfully?"

Winter oats should be seeded in lower Delaware about the first of October. The usual rate of seeding is from 8 to 10 pecks per acre. Under good conditions a yield of 35 to 40 bushels is not uncommon. Corn and cowpeas combined make a silage richer in protein than corn alone, hence it has somewhat greater feeding value than corn silage. Soy beans can be successfully grown in lower Delaware. Soil that will produce a good crop of corn will grow the beans satisfactorily.

Spring Planting for Hay.—D. C. G., Pennsylvania, writes: "I have about 5 acres of ground from which I would like to get a crop of hay. There is no grass on it now, only ragweed. My idea was to plow it as early as possible, work it down well and apply 50 bushels of stone lime per acre. Work the lime into the soil with a harrow, then apply manure with a spreader and sow to Crimson clover. Will this make a crop early enough to mow for hay, about July or first of August? Would it be better to sow some other seed with it? If so, what kind? Will the clover make a good sod for corn the following spring? After cutting will the Crimson clover grow up again until cold weather, so as to furnish something to plow down the next spring?"

Our correspondent has evidently been misinformed regarding the life habits of the Crimson clover plant. It does not pay to attempt to sow Crimson clover in the spring. As the warm weather comes, the plant suddenly heads out when a few inches in height, producing a very small yield of hay. Crimson clover should always be seeded in the months of July or August. When once cut Crimson clover does not continue growth. Canada peas and oats would make a very good hay crop and would be removed by the early part of July. Write the Delaware Experiment Station at Newark, Del., for their free bulletin on Crimson clover.

Use of Carbide Ashes.—C. H., Pennsylvania, writes: "I would like to know whether carbide ashes which are left from the burnt carbide, are good for the land, and the elements they contain."

Carbide ashes contain chiefly carbonate of lime; in other words, air-slaked lime. Care should be taken in applying this material to the soil in that there may be remaining in it some of the unspent carbide. It is not advisable to treat land with the carbide refuse just before planting. If used it should go on the land some weeks before the seed is put in the ground.

Agitation Against Free Seeds

The Grange attitude against congressional free seeds has long been well understood, because freely and fearlessly expressed, and sooner or later that opposition is going to prove strong enough to kill the free seed farce. The little rhyme printed below shows up the ludicrous side of the free seed graft and is so completely a description of how "free seeds" generally turn out, that it will be widely appreciated. It will prove useful as a "filler" in Grange programs and its point is worth while. The more extensively the anti-free seed agitation can be spread, the sooner its finish will come. Here is the reading:

TO A CONGRESSMAN.

(After receiving a letter promising many packets of free seeds.)

(From the New York Press.)

Dear Sir: I got your little note,
But if you want to keep my vote
Don't send the seeds you mention there,
But drop them in the empty air.
Last year you sent me quite a pack,
And, trusting fool, I broke my back
To plant them in the yawning ground
And make for each its little mound.
I watered them with tender care,
Protected them from crow and bear,
And plowed between the long, straight rows—
Oh, could I punch you in the nose.
Tobacco came where beans should be;
Now, as I never smoke you see,
The crop was not a welcome one;
Tobacco worms had lots of fun.
The tapioca wildly grew
Where I had looked for green peas new,
And rhubarb raised its horrid head
In what I thought a parsley bed,
While rank alfalfa made a muss
Where should have bloomed asparagus.
I stuck up frames to hold tomatoes,
And on them crept some sweet potatoes.
Worst of all, wild turnips popped
Where I the melon seedlets dropped.
Please send your seeds to far Peru,
Or Mexico, or Timbuctoo;
But kindly wipe me off your slate,
Or you won't be my candidate.

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You know where the ANIMAL MATTER in Armour Fertilizers comes from. You may have grown the hogs and cattle.
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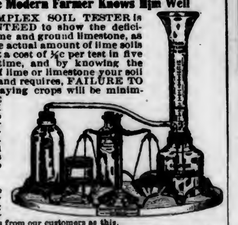
THE SIMPLEX SOIL TESTER is GUARANTEED to show the deficiency of lime and ground limestone, as well as the actual amount of lime soils contain at a cost of 3¢ per test in five minutes time, and by knowing the amount of lime or limestone your soil contains and requires, FAILURE TO GROW paying crops will be minimized. THE SIMPLEX TESTER is sold under a money back GUARANTEE and costs but very little to own.



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Edw. V. Lichtner, Agriculturist, RINGWOOD MANOR, N. J
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CHESTERBROOK FARMS, Berwyn, Pa.

Barred Rocks, White and Golden Wyandotte, Light Brahmas, Leghorns, Langshans, and Orpingtons. Farm grown healthy, vigorous stock. Price quality, reasonable prices. 500 head for sale. Buy your stock from a veteran breeder. Write today.
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POULTRY

Edited by F. V. L. TURNER

All letters, inquiries and requests in reference to poultry, should be addressed to the Poultry Editor of The Practical Farmer, Philadelphia, Pa.

To Reduce Blackhead

Statistics show that fewer turkeys are raised each year; blackhead is responsible for this fact to a greater extent than any other cause. Turkeys die from other diseases, chief among these liver trouble, either coincident with a blackhead condition or from simple derangement of the liver and consequent digestive disturbances. Blackhead is a disease of the liver with outward symptoms consisting of dark spots or lumps on the head and neck. Scientists state that not always are these outside symptoms present in this ailment. It is not proved contagious invariably; neither is it proved hereditary. Progeny entirely free from the disease have been and can be produced from affected birds, with little difficulty.

It is authoritatively stated that blackhead is common to chickens as a natural condition, just as the gape worm is carried for life by mature fowl without fatality. It has not been proved that the chicken, any more than any other form of bird life, all the way down to the sparrows, is a carrier of disease. How the disease is transmitted is not known. So far science has determined that the disease is controllable to a very great extent—that a disease-laden flock may, through its progeny, be converted into a disease-free flock.

Since turkey raising is highly profitable more turkeys should be raised; to lessen the mortality and permit a higher percentage of success in bringing to maturity the hatched turkeys has been the effort of one of our greatest research institutions; this institution has accomplished more in two years than has ever gone before in this direction. The result of turkey propagation under the method followed by the institution in question may not, at first blush, appeal to the majority of turkey raisers; as a matter of success it is the only means extant that offers an opportunity to produce disease-free birds.

Feed does not play any more important part in turkey rearing than it does in chicken rearing. Our writers on successful turkey rearing prescribe rations that are well suited to the livability of the greater percentage of every hatch, all other things being equal. Lessen the livability of a hatch by breeding from diseased birds and increase the livability by breeding from disease-free birds and the rations have nothing to do with the case. It has long since been determined that no diseased or weakened male or female chicken or other fowl shall be used in the breeding pen for obvious reasons; no such determination has been arrived at in the case of turkeys, nor for our purposes shall such a determination come about, but at the same time it is just as reasonable, sensible and requisite with turkeys as with chickens. However, our scientific friends (and they are friends indeed, in this particular instance) have decided that better results can be obtained if apparently healthy birds are used as breeders.

For rations these columns contain everything that can be desired; in the issue of February 15th Miss Tucker prescribes a ration that is ample to all needs and Miss Tucker understands turkeys and has been highly successful in rearing them. Other contributors to these columns prescribe, from time to time, rations that give excellent results.

Going along to the scientific research in blackhead prevention, let us make it plain that the work in this direction has not been completed, not by a very great deal; scarcely anything has been accomplished other than that it is possible to eliminate the disease in the progeny of preceding generations. To be more specific, the eggs (fertile) of the present generation can be made sterile to the disease, but the resultant poults cannot be rendered immune to contagion. Contagion can be removed, however, and the flock of young then stands free. To that end this article owes its existence.

In producing disease-free young the following method was pursued: Mature blackhead laden turkey hens were selected as breeders. Cultures of the blackhead bacillus were made and to avoid failure of the disease in the young hatched from eggs laid by these infected birds, the poults were inoculated. Eggs from the female poults were used to hatch a second generation but were *sterilized with alcohol or carbolic acid before going into the incubator and disease-free birds were produced.* These birds were hand reared and now, at maturity, occupy a roof-covered *wire enclosure* in which they "grew up" after the hover period.

The conclusions are these: If eggs from birds known to have the disease are sterilized and incubator hatched, disease-free poults result. That to insure immunity, contagion should be removed; to best secure immunity parent stock should be sold to market or otherwise disposed of or removed from the immediate vicinity. It has not been determined that association of turkeys with chickens is safe so far as danger from contagion is concerned. Conclusively, a disease-free generation reared away from chickens or other flocks of poultry are very much less liable to blackhead than otherwise.

As precautionary measures internal antiseptics are as necessary to turkeys as to other fowl life, because all domesticated animals lose to a greater or less degree the dietary protective powers inherent in the wild state. It is not recorded that wild turkeys have ever been discovered dead from blackhead.

Beta naphtol is strongly recommended in ¼-grain doses once every two weeks, as a preventive to any intestinal disease.

Olive oil, or just as effectively, cotton seed oil, a teaspoonful to a 10-weeks-old poult, is nourishing, while laxative, and green food is always essential. A tablespoonful of oil to a 5-months-old bird usually puts its feathers in a normal position and increases a waning appetite.

Take a page out of the hen's book—practice the same diligence and failures in the poultry business will be as rare as the old hen's teeth.

And the price goes higher and higher—what a scramble there will be this spring when the cold storage collectors get busy.

"Who's molting?" exclaimed the southern hen when she experienced her first snowstorm.

Tells Why Chicks Die

E. J. Reefer, poultry expert, of 436 Reefer Bldg., Kansas City, Mo., is giving away free a new book which tells of a simple home solution that raises 98 per cent. of all chicks hatched and cures white diarrhœa over night. All poultry raisers should write for this valuable free book.—Adv.

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Still Time to Buy Breeders—Putting New Blood in the Flock

A few dollars invested in a male of known heredity is worth more than two or three small flocks that have been bred into themselves for a half dozen or more generations. Long since it has been determined that eggs in greater number follow the first cross of two unrelated families, if the male comes from a heavy laying mother. It is so easy to figure out the actual losses resulting from continuing the same line; take the case of a flock of 12 birds, each averaging 150 eggs per year. Some of these birds lay over 200 to bring up the average; the money yield from these 12 birds is the average price per dozen multiplied by the total dozens laid; if the poor layers were weeded out by the trap nest and mated to a male of known heritage the pullets therefrom would average considerably more than 150 eggs. Those birds that lay less than 100 eggs are barely paying for the labor, feed and house room they require.

How many poultry raisers pay any attention to mating? This question is asked without any apologies. Not over 15 per cent. of all the millions of farmers who raise chickens give even a passing thought to the male side of the flock, and this failure to correctly mate is directly responsible for the low average hen production on these millions of farms, a disastrously unprofitable 70 eggs each in twelve months from the known hens kept by farmers.

Necessarily the articles furnished by our readers represent a small percentage of the total subscribers to The Practical Farmer who are interested in poultry; every article contributed to the issue of February 15th indicated the desire and intention to secure greater improvement in poultry culture. There are, perhaps, thousands of unwritten stories of success which our readers could supply if they were so inclined and there are still more stories of following the beaten path which will never see the light. To these there is the simple way out in the purchase of males that have been produced by those who have, by painstaking care and the practice of intelligent mating, made into productiveness the unproductive nondescript.

True, there are some of those who are now successful who may become more so by improvement through the introduction of pedigreed males, and these are urged to introduce a new line of blood that not only may egg production be increased, but that greater vigor and stamina may come about.

Helping the Turkey

Since writing, a few issues back, about turkeys, I have tried out very successfully a remedy for the "dumps." I am sure every turkey raiser will immediately recognize "dumps"—it is nothing more, however, for those who are uninitiated in turkey "dumps," than the hunched-up, ruffled, dejected, forlorn premonitory signs of a mighty sick turk. After all of the ups and downs of turkey raising I hit upon the knowledge that a turkey is the contrariest piece of animal life about its own comfort that ever suffered from an excess of bile, and that there was no other barnyard inhabitant that could equally as well disregard everything that nature offered as correctives, so I took it upon myself to force the bilious turk to overcome its biliousness.

From sheer neglect of all the laws of nature a turkey will get so tarnation sick that the red warts on its beautiful (?) head will turn a measly yellow, old (or young) turk will refuse to eat, refuse to protect itself in a storm, and

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We want to tell you how to prevent chicks from dying in the shell just at hatching time, how to save them from White Diarrhœa or Bowel Trouble; how to build the best Home Made Brooder in the world from an ordinary box or change your old one. Above information absolutely free, for names of 5 to 8 of your friends that use Incubators. Send Names Today.

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will even sit down in a rain pool or snow bank, and all because its head is biliously wobbly and achey (half of these words are not in any dictionary, so don't waste any time over them—every one means something, though, about a sick turkey).

Now for the remedy—the old standby is a tablespoonful of olive oil tonight and tomorrow morning a mixture of one grain of powdered gentian root, two grains of bicarbonate of soda, one grain of powdered ginger, one grain of powdered charcoal and one-quarter grain of black pepper. Put this mixture with a little bread and push the whole lot down the turk's throat far enough to prevent its being coughed up or shaken out. Repeat the oil and chemical doses two days in succession, provide a little green food and dry mash on the second day, and I am going to give my personal guarantee that if the turk is not more than half dead he or she will come to life again in the full of health. It may be necessary, if the case is very bad, to repeat the dose after the third day if improvement is not effected.

It is well to keep on hand some of the mixture prescribed, and for a hen that looks at you out of the corner of her eye and expresses silently a "please let me alone" wish, there is nothing better.

The easiest way to remove pin feathers is to skin the hen.

Queries Answered

Scratching Feed.—C. G. L., Pennsylvania, writes: "I wish you could give me a formula for mixing a scratching feed for chickens in bushel lots. I have the following grains: Wheat, cracked corn, oats, barley, buckwheat, Kaffir corn and sunflower seed. Now, to take one bushel of wheat as a basis for our calculations, how much of the other grains mentioned above should be mixed with this bushel of wheat to make a balanced ration?"

Mix as follows: Cracked corn, 60 lbs.; wheat, 60 lbs.; oats, 40 lbs.; barley, 20 lbs.; Kaffir corn, 10 lbs.; buckwheat, 10 lbs.; beef scrap, 5 lbs.; sunflower seed, 5 lbs. The foregoing should, with a good laying mash, give excellent results. If liver disturbances are not set up another 2½ pounds of beef scrap may be added. The beef scrap should be sifted, the coarse part, at the rate given above, going into the grains and the fine part into the mash.

Relative Value of Feeds.—J. S. G., Missouri, writes: "What is the relative value of oil meal, beef meal and beef scrap as a feed for laying hens, per 100 pounds?"

Beef scrap and beef meal are considered as of the same feeding value, in the nutritive ration of 1:1.4, 154 potential energy per ounce gross fuel value of digestible matter. Old process linseed meal has a nutritive value of 1:1.7, 99 potential energy in one ounce. A mash of 100 lbs. bran, 50 lbs. of corn meal, 50 lbs. ground oats and 50 lbs. of linseed would be suitable for layers, whereas not over 5 lbs. of beef scrap could be used in place of the oil meal.

Turkey Trouble.—R. B., M., Ohio, writes: "I have a Bronze tom turkey to develop symptoms of cholera; after treatment he recovered fully, apparently. Will he do to breed from this spring?"

Yes. Turkeys do not, as a rule, contract cholera. They are, however, the most bilious creatures in the world and their more frequent ailment is deranged liver with attendant bowel trouble. Greater success may be had with turkeys if intestinal antiseptics are given as suggested in the article in this issue. The diseases that more frequently affect turkeys are blackhead, colds and roup, rheumatism and gape and tape worms. These latter worms are quite dangerous and kill many young ones. Cotton seed or sweet oil, an equal quantity of turpentine, ½ teaspoonful of the mixture every third day for a 10-weeks-old poult (less for younger birds), until three doses are given, will relieve the turk of worms, usually.

New Incubator—Free

The Wight Co., D.59, Lamoni, Iowa, wants to give every reader of this paper a new $5.00 all-steel incubator. It will take just 30 minutes' work in your home to get this incubator. Write for special offer today.—Adv.

Garden Suggestions

(Concluded from page 95)

they find it best to let it lie and rot some before planting time in April. I use a compost of manure and grass sods made a year ago. This placed in the hills and supplemented with some commercial fertilizer just before planting will make fine melons and cucumbers. I make the hills 3x5 feet apart, the 5-foot space between the rows. The Salmon-Tinted Pollock is excellent and the New Honey Dew will be tried this year. This is a smooth, white skinned melon with orange flesh and is claimed to be of the highest quality. As cucumbers for home use I have not found any better than the Davis Perfect.

Lettuce

Do not sow the Big Boston for setting in the open ground. It is all right in the frames, but soon runs to bloom in the open ground as the weather gets warm and will invariably fail to head well. The best lettuces I have tried for the outdoor garden in spring are the Hanson and the Wonderful. This latter is claimed by some to be identical with the New York, but in my garden I have found the Wonderful larger than the New York. In fact, it is the largest head lettuce grown. Down in North Carolina this lettuce was introduced by a market gardener named Shellem, an Englishman, and there it is still known as the Shellem lettuce. It stands more heat, and heads well, than any lettuce I have grown. Seed can be sown in March either in a frame under glass, or down here in the open ground. I set the plants 10 or 12 inches apart each way in beds 6 feet wide for convenience in cultivation, and the soil is stuffed with rotten manure and then the growth is urged by side applications of nitrate of soda, and plenty of water, for in a dry soil lettuce will do little and soon bolt to seed.

Egg Plants

March 10th is time enough to start the eggplants, for they need the advancing sunshine, being far more tender than tomatoes. I will sow the Black Beauty and an improved strain of the New York improved. I have always found difficulty in getting the Black Beauty started. They seem to be far more tender than the New York, and their early growth is very weak. I grow them for their quality, productiveness and earliness, and grow some of the New York for size and stronger growth. The Black Beauty is excellent in quality but never so large as the New York, and when one wishes to sell any the New York is more attractive to the average buyer, while the smaller Black Beauty would be better. But city people buy by the eye and know very little about quality.

Peas

My earliest peas, the Nonpareil, were sown in February. In March these can still be sown, and I will also sow the dwarf early peas of better quality, Thomas Laxton and Sutton's Excelsior. These will run me along until the Champion of England come in, sown at same time. There are, of course, many other fine varieties of peas. Among the earliest the Gradus has been highly praised. It is certainly a pea of fine quality, but in my experience is the poorest of bearers. Therefore I stick to the old Champion of England, than which there is none better. Being a tall grower, it must have some support and I save room in the garden by planting it alongside my woven wire fence. This fence also furnishes a fine place for the climbing varieties of lima beans, and I get rid of ugly poles and brush.

The World

clamors for Food for man and beast at higher prices than have prevailed during the last fifty years. The market is at our very doors. The opportunity of a lifetime is here. Every Farmer should plant every available acre this spring and plan to raise the biggest crops he ever grew. The Best Seeds grow Bumper crops.

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D. B. Brand Seeds are used on the Cornell College Farms. The New York State Experiment Station uses them for their extension work, and we sell thousands of Farmers, Granges and Farmer's Clubs annually. **Our prices will save you money.** New cotton bags **free.**

35,000 Bushels Dibble's Seed Oats New Heavyweight, in our opinion, the heaviest and most productive American Oat. Grain, pure white, thin hulled, average weight 45 lbs., thoroughly recleaned, straw strong, stiff and sturdy, wonderful yielder. Eight different crops have been reported to us by our customers in the Middle and New England States of yields of over 100 bushels per acre. In our own township, Heavyweights have yielded 115 bushels per acre when common oats turned out less than 60.

Prices—100 lb. (the proper amount to seed one acre), $3.50; 10 bushels or over, $1.00 per bushel. Bags Free.

Dibble's Twentieth Century, extra early with thin hulled grain, weighing 34-38 lb., splendid cropper. Many of our customers have reported yields from 80-100 bushels per acre, and one of our neighbors delivered to our seed house, 440 bushels recleaned grain from a four-acre field. On our own farm, growing 150 acres a year for the last ten years, the average yield was above 60 bushels per acre or more than twice the average of the United States for the same period.

Prices—2½ bu. bag (enough for one acre, $2.50); 10 bushels or over, 90c per bushel; bags free.

20,000 Bushels Dibble's Seed Corn, pedigree stock, northern grown for northern Farmers, acclimated, produces **ears** as well as stalks, every lot tested in our own Laboratory, both for germination and moisture content, 90% germination guaranteed. (Average all samples tested to date above 95%) "the best money can buy."

Best eight varieties for the Crop or the Silo:

Dibble's Early Yellow Dent.
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Dibble's Mammoth White Dent.

Bushel, $2.00.
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Special proposition to Granges and Farmers' Clubs in 50-100 bushel lots.

Dibble's New Drought Proof Yellow Dent, bushel, $3.00; 2 bu. bag, $5.00.
Dibble's Mammoth Yellow Flint, bushel, $3.00; 2 bushels or over, $2.50 per bu.
Dibble's White Flint, extra early, bushel, $2.25; 2 bushels or over, at $2.00 per bu.

New bags free of course. Samples Free.

50,000 Bushels Dibble's Seed Potatoes northern grown from selected stock Seed, every bushel saved from fields that were free from blight. Early, Ohio, Irish Cobbler, Early Rose, Manistee, Bovee, Queen, Moneymaker Giant, Mountain, Gold Coin, Uncle Sam, Rural New-Yorker, Carman, Sir Walter Raleigh and Dibble's Russet, the best potato for main crop now in cultivation.

Dibble's Farm Seed Catalog the leading strictly Farm Seed Book of the year contains up-to-the-minute information every Farmer should have before he spends a dollar for Farm Seeds. It is beautifully illustrated, many pictures in colors, descriptions written by our Edward F. Dibble, a practical Farmer of thirty years' experience, a Farm Seed Catalog for business Farmers. Dibble's New Book—"Alfalfa Culture for Eastern Farmers," and ten samples of Dibble's Farm Seeds for testing **Free.** Just say on a postal card—"Send the Books and Samples," and address—

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OUR EXPERIENCE POOL

All our readers are invited to contribute their experiences on the topics under discussion. $2.00 will be paid for the best, and $1.00 for the next best contribution, and 50c for each other article published. Contributions must be in our hands 15 days before date of issue.

TOPIC No. 1215, MARCH 15.—Describe the type of fence you find the most satisfactory on your farm. How long does it last and what does it cost per rod erected? How many acres on your farm and about how much each year do your fences cost? What have you done since you have been on the place, to reduce this yearly charge?

TOPIC No. 1216, APRIL 1.—What has been your experience in tile draining land? How much has it cost you for each rod laid, and what have been the returns? Have you used a horse or power machine for digging the ditch? Have you ever made and laid concrete drains?

TOPIC No. 1217, APRIL 15.—Time is coming to turn the cows out to pasture. Are you troubled at first with garlic flavor in the milk and how do you overcome it? How do you cool and care for the milk before it is shipped? What kind of pails do you milk into, and why?

Topic No. 1214.—Do you find oats a profitable crop? Do you broadcast or drill them and what fertilizer do you use?

R. C. U., Peach Bottom, Pa.—I cannot say that oats are a profitable crop compared to others in this locality. One year with another our average is about 45 bushels per acre. I consider that oats are an essential crop for most every farmer to raise. As a milk maker for the dairy they rank high as a protein feed. They put "trot" and "vim" in the horse. The hogs and chickens need them in their rations. We generally raise about 15 acres of corn per year and then the next year we put this ground to oats, potatoes and Hungarian. If I could handle a larger acreage of potatoes it would pay me to raise them and buy oats, because our land is suited for potatoes.

We aim to have the ground plowed and in shape to drill oats about the middle of April. We always drill them in and apply the fertilizer at the same time. We always roll the ground after the oats are drilled. We apply about 350 pounds of 2-10 fertilizer per acre. We find that two bushels of seed per acre does the best for us. If I were to hire an acre of oats put in it would cost me as follows: $1.75 for plowing ground; $1.25 for harrowing, drilling and rolling; $2.50 for fertilizer; 75 cents for harvesting; 40 cents for twine; $1.35 for threshing; $1.26 for seed, making a total of $9.26. Considering the crop of 45 bushels at 63 cents per bushel, makes $28.35 per acre, leaving a balance of $18.59 after expenses are deducted. We consider the straw worth $4, so that would make $22.59 per acre. We use the straw to feed horses while idle in winter, and as roughage for young cattle.

Owing to the lack of labor we find it necessary to raise a variety of crops. We must raise crops that can be planted, taken care of and harvested profitably at different times during the season, so that no two will conflict with each other.

H. P. T., Ulster, Pa.—It has always been a problem for me what is the most profitable crop to get the land from corn to grass or clover. Oats seem to fit in about the best, but it is a question whether they are profitable. Take them year after year they seem to fill in from the corn stubble to the clover crop with fair success. We most always manage to plow our corn stubble in the fall. Through the winter we haul burnt lime in a pile near the gate of each field, and in the spring before harrowing we spread about 1500 pounds per acre. Take the average season and two good harrowings fit the field for seeding. We use a grain drill with grass seed attachment. Our seed is run through a fanning mill and recleaned, weighs about 40 pounds per bushel and we sow about 80 quarts per acre. The yield varies from 20 to 75 bushels per acre, the average being 45 to 50 bushels.

We have fed lots of green oats to our cows. They are a very good milk producer, and make great feed when sown with Canada field peas. A good many farmers in this locality cut their oats with a rake-off reaper, and haul them in loose, loading on with Berley forks and unloading with the harpoon hay fork. We harvest with a binder, as they can be mowed away on scaffolds and on top of a well filled hay mow when in bundles. The straw is a valuable part of the crop; being of a soft, pliable nature it is a splendid bedding material, and is also relished by stock if fed in small quantities.

H. B. S., Emaus, Pa.—We have not found oats a profitable crop, for various reasons. In the first place, they do not yield enough bushels per acre, and, in the second place, the price per bushel is not high enough to make them profitable; and also they take about as much fertility out of the soil as a more profitable crop. The few acres we raise we usually drill in; as we have tried both ways, we did not notice any difference in yield. And if you want to apply commercial fertilizers, drilling them in is to be preferred, of course, so as to be able to do it in one operation. The custom around here is to drill them in. For commercial fertilizer we used phosphoric acid and have had good results with it. They cost us about $10 per acre or 30 cents per bushel to raise. The yield per acre is about 35 bushels, therefore at 60 cents per bushel they would return about $21 an acre; deducting $10 an acre for expense, we have a net profit of only $11 an acre. We have found potatoes to be a good substitute for oats, and also considerably more profitable. We have been farming potatoes for the last twelve years and have become financially independent with them. Our crop of 15 acres this year brought $2365, an income of $160 an acre.

S. S., Easton, Md.—I will give our experience with winter oats as a grain crop. Spring oats never do well here, as the dry weather in summer generally does not mature the grain properly, but winter oats do very well, as they are cut about the first of July. We have never cut any green for hay, as we always get ours threshed to sell and as a supplement to corn.

We drill two bushels to the acre, between the 1st and 10th of October, at the same time applying about 250 lbs. of 16 per cent. acid phosphate. Valuing the labor of a man and team at $3 a day, and interest on money invested in land at 5 per cent., the cost of growing an acre of oats would be as follows: Plowing, $1.80; preparation of seedbed and drilling, $2.25; two bushels of seed, $1; 250 lbs. of fertilizer at $15 a ton, $1.88; cost of cutting, including twine, $1; threshing, including coal and help, $2.25; interest on $100 as first cost of land at 5 per cent., $5; taxes, 75 cents; thus bringing the total cost of growing an acre of winter oats, when our average yield is 48 bushels and the average price is 50 cents per bushel, to $15.93; deducting this amount from the value of the grain, $24, you have a profit of $8.07, exclusive of the value of the straw, which is worth $4 per acre. We have never found any grain to take the place of oats that will return more profit and at the same time be useful as a feed for horses and other stock, considering the amount of labor required.

B. P. E., Hicksville, O.—Nearly all the oats are disked and drilled in on our Clyde clay, which rents for about $10 per acre for corn. The returns from oats are very variable. Once in three years or more one will get a good corn rent with 60 or 70 bushels of oats; other years there won't be more than enough to pay for the labor, or even less. It is not feasible to figure an average cost. This much is certain, if rent is charged against the land oats are mostly raised at quite a loss.

A legume hay plant that would time like oats would be the most glorious blessing that could strike the corn belt. I have tried both hairy vetch and soys, tried them hard. They grow fine but don't time right. The vetch is ready for hay making about Red clover time; this comes in busy corn cultivating. The soys interfere with corn in their planting. They also make hay a little late. Then fall rains and jack frost may take a hand in things, and worst of all, wages get high again. These objections I have mentioned apply only to land where a great area of corn is grown. Where corn is restricted it seems to me the vetch and soys deserve more attention. But that is another fellow's story. The upshot is that I am about compelled to return to oats. All I can do is to vary a little with a field of barley or wheat after corn. I am living in hope that Uncle Sam or some corn-belt state will hunt over the big list of known legumes for some plant that would give us nice legume hay about oats cutting time.

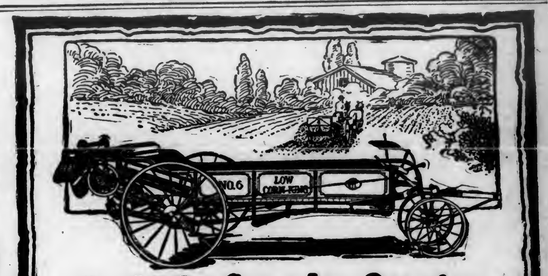
S. M. T., Chester, Pa.—We have not grown oats for a number of years, on account of the cost of preparing the seedbed and the rather low net returns for the crop. When sown they are usually drilled like wheat and harvested for the grain. It is necessary to have some crop to get the land back into grass and wheat is used for that as corn goes into the silo. If oats are planted in a rich soil they will generally lodge badly shortly before cutting time and much straw is lost; also oats, to be properly handled, should be cut a little green and allowed to dry before binding, but with the modern binder this cannot always be done. If the grain is allowed to stand until ripe enough to cut and store it shatters badly and makes quite a loss.

We find oats profitable when sown broadcast with cowpeas and cut green for hay. The peas are sown before the ground is plowed after danger of frost; as soon as plowed under we sow the oats and then harrow them in. By the first of July they are ready to cut and put in the mow. It takes about a week of good dry weather to get them cured properly.

Corn is the most profitable crop for the dairyman to raise and we plant all our land in corn rather than much grain. We find that oats and peas cut green and made into hay yields about three tons to the acre of first-class hay, and it is even superior to alfalfa for a rich milk producing feed. Horses, cows and calves all relish it greatly.

It seems strange that none of the contributors to this Pool have mentioned treating seed oats for smut as one of the essentials for a profitable crop. Last year the county agents in Pennsylvania made a special effort to combat this disease and through their efforts thousands of bushels were grown which otherwise would have been a total loss.

The Ohio Experiment Station recommends for smut in oats, 1 pint or pound of 40 per cent. formaldehyde, sold at drug stores as formalin, mixed in 40 gallons of water to treat 40 bushels of seed. The solution should be sprinkled over the oats spread on a tight floor or canvas, and the oats shoveled over so that every grain will be thoroughly moistened. After being covered with a blanket for three hours or over night, the oats should be spread out to dry. In order to prevent further infection, bags, mills and drills should be disinfected with the same solution if the oats are to be put in them.



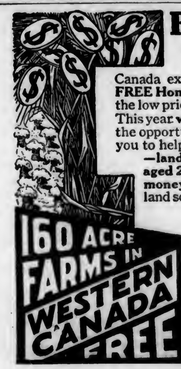
Settle the Spreader Question

THE farmer who uses a **Low Cloverleaf, Low Corn King or Low 20th Century spreader** these days is the man who makes the most money. His land increases in value when regularly fertilized. His crops grow better in quality and larger in yield when supplied with available plant food. Of all the spreaders on the market, the **Low Cloverleaf, Low Corn King and Low 20th Century** come nearest to doing this work as it should be done.

It is a long jump from the ordinary machine to the modern low spreader with its double beater and wide spread. Every farmer who knows the value of good spreading is buying one of these wide spread machines. As a matter of fact, no farmer can afford to buy any other kind, because the saving of time and labor and the better job of spreading done by a **Low Cloverleaf, Low Corn King or Low 20th Century** makes them worth more than ordinary spreaders.

Complete information about these machines is worth money to you. Drop us a line at the address below and we will show you very plainly why it will pay you to buy a **Low Cloverleaf, Low Corn King or Low 20th Century** spreader.

International Harvester Company of America
(Incorporated)
CHICAGO U S A
Champion Deering McCormick Milwaukee Osborne Plano



Raise High Priced Wheat on Fertile Canadian Soil

Canada extends to you a hearty invitation to settle on her **FREE Homestead lands of 160 acres each** or secure some of the low priced lands in **Manitoba, Saskatchewan and Alberta.** This year **wheat is higher** but **Canadian land just as cheap,** so the opportunity is more attractive than ever. Canada wants you to help **feed the world** by tilling some of her fertile soil **—land similar to that** which during many years **has averaged 20 to 45 bushels of wheat to the acre.** Think of the **money you can make** with wheat around **$2 a bushel** and land so easy to get. Wonderful yields also of **Oats, Barley and Flax. Mixed farming** in Western Canada is as **profitable an industry as grain growing.**

The Government this year is asking farmers to put increased acreage into grain. Military service is not compulsory in Canada but there is a great demand for farm labor to replace the many young men who have volunteered for service. The climate is healthful and agreeable, railway facilities excellent, good schools and churches convenient. Write for literature as to reduced railway rates to Supt. of Immigration, Ottawa, Can., or to

F. A. HARRISON, 210 North Third St., Harrisburg, Pa.
Canadian Government Agent.

The Women's Exchange

This is the farm women's *own* department—for them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

MARCH 15.—What do you find best for walls, a plaster tint, paper, oil paint or water paint? Tell us what success you have had applying any or all of these yourself. Give us an idea of how you treat the different rooms.

APRIL 1.—Tell us of some short cuts or easy ways and aids for doing the family sewing. To what extent do you find it economical to buy your and your children's clothes ready made?

APRIL 15.—What are you doing to make your children take a personal interest in the farm and farm life? Is there any organized effort in your community working along these lines? Have you planned any special features or amusements for the summer?

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

What have you found to be the greatest labor saving device for your inside duties?

MRS. G. S., Canton, N. C.—I think water in the kitchen, with kitchen sink, is the greatest help and labor saver of anything in the farm home. Just think of the steps most farm women must make to the well or spring for water, and the hard work it is carrying it in. Then most of it must be carried out again and nearly always keeps a wet place in the yard, which in summer draws the flies and in winter is a dangerous sheet of ice. It was for these reasons we had water and sink put in the house. Running water is nicest, but if you can't have this, then well water can be pumped into a tank or large barrels, or rain water can be run from the roof into barrels; this is the cheapest, and if kept well covered is nice for most anything. The pipe to carry the water from the sink can empty on the ground 200 or 300 feet from the house and is better than being dashed in the yard. The sink with water certainly is a great help on wash days. The cost depends on what kind of sink is used and how far the water must be piped. The farm men can dig the ditches at odd times, and do most of the work putting in pipes.

MISS R. A., Ashville, N. Y.—My neighbor tells me that no one thing was ever installed in her kitchen that reduced her work, especially in winter, so materially as her electric lights do. Her husband did all the wiring himself, and installed the system exactly as they wanted it. It is not confined to the kitchen, but lights the entire house and the barns, so that if they come home at night they drive up beside the veranda, step into the kitchen, and, by simply turning a switch light up the house or barn.

But it is the kitchen phase of the subject with which we are dealing at present—no lamps ever need be washed or filled, and the light is infinitely more satisfactory than would be possible with any lamp, even with the most scrupulous care. Accidents are impossible, either from children or their elders; and any work whatever that must be done before daylight or after dark, is greatly facilitated and rendered much more pleasant as well, by plenty of good light. Another point is too good to omit; a light properly placed in a dark closet or cupboard is of inestimable value in locating a particular article wanted in a hurry.

During the long winter evenings what is more depressing than the average dim, smoky old kerosene lamp? What can add more of genuine good cheer than a clear, soft, even light that penetrates every corner and effectually dispels the last bit of gloom?

H. McK., Mercer, Pa.—One of the greatest labor saving devices we have, and one that is within the reach of almost any one's pocketbook, is the carpet sweeper. I think few women realize, unless they have tried it, how much easier it is to sweep with a carpet sweeper than with a broom. The dustless dust mop is another great convenience. With carpet sweeper and dust mop we can keep our floors in good order with only an occasional sweeping with a broom, and a lot of time and back ache is saved.

We have the vacuum sweeper also, which is even better than the carpet sweeper, as it takes up more dust. Then we have the vacuum cleaner, which is certainly a gold mine at house cleaning time.

I should like to tell you also about our furnace. On the coldest day in winter we are warm any place in our house, up-stairs or down, and our house is large, too. The amount of coal required for upkeep is small; in fact, sometimes I think it does not require as much coal for the furnace as it does for an ordinary slack burner. Then there is so much time saved in not having to be always putting in coal or taking out ashes, as one coaling in the morning will mostly last all day unless the weather is extremely cold, and the ashes have to be lifted just once a week. I do not know just how much it cost to install our furnace, but feel sure it has paid for itself many times in labor and fuel saved.

MRS. H. D. S., Schnecksville, Pa.—There are three labor saving devices which I should find hard to get along without, and all three are so inexpensive as to be within the reach of practically every farm woman. The first is a wire dish drainer. Dishes well washed, thoroughly rinsed with hot water and drained dry are just as clean as those wiped with the most spotless of towels. I wipe only my silver, and I calculate that my drainer saves me at least five minutes each time I wash dishes.

My second helper is a tea wagon. It was made from an old-fashioned washstand, such as can be found in almost every farm house, in the attic. The narrow back-board and one towel rack were removed, and the top edged with a narrow molding. The other rack was left to serve as a handle. A shelf underneath, about a foot from the floor, was raised to a foot beneath the top. Then the stand was fitted with wheels from an old baby carriage. This contrivance saves me many steps each day. I can take in an entire meal in two trips, and sometimes only one is necessary, and the same is true in clearing the table. As we used what we had at hand, our tea wagon represents no cash outlay.

My third article is a dumb-waiter from the cellar to the kitchen. It comes up just at the end of my kitchen table and does away with much running up and down stairs. My husband made it for me at a cost of about eight dollars.

MRS. E. M., Denmark, Ia.—As I have a number of small children I found my washings were getting bigger than I could manage without help. As my husband already had a small gasoline engine for pumping we decided to get a power washer, and bought a 2-tub affair. The tubs are cypress, mounted on a U-bar steel frame, so that it should last for many years. It cost $35 at our hardware dealer's. I find with this machine I can get through with my washing in about half the time it takes by hand, and most of the hard work is done by the engine. The outfit has a good wringer attached that can be set in four different positions and will turn forward or backward. It has a safety release lever so if anything gets caught it can be quickly loosened. The drain is arranged so that a hose can be attached to lead the wash water away, thus saving much heavy carrying of water in buckets. All working parts are covered, so that the clothes of the one working about the machine will not get caught and cause trouble. I find that with this machine blue Monday has lost much of its wearisomeness.

MRS. W. F. S., Hepburnville, Pa.—Having a small family, with help scarce and wages high, we decided the cheapest way in the end would be to get an engine to do the hard work. As we had no cellar under our kitchen the first thing to do was to dig the cellar. We have a reservoir about five or six rods from the house, where we pump the water from a 92-foot well with a windmill; this we have had for about twelve years. We have a bath room with hot and cold water; also have hot and cold water in the laundry and kitchen. We do not have a stove in the laundry, because the water is heated in our range, which has an "L" water front and heats the water very quickly. With the engine we run the washer, cream separator, churn and butter worker combined, ice cream freezer and grindstone. The cost of the engine was $45, washer $20, churn and butter worker combined $34. The concrete work we did ourselves, so that only amounted to a few dollars. Now I can do most of the work myself. We feel well repaid for our investment. We would not give it up for twice the cost.

MRS. A. T., Ulster, Pa.—I cannot think of any one thing that saves me so many steps and so much hard labor as my new white enameled sink. It is 18x36 inches and cost $2.25 at a mail order house. The pipe was 10 cents a foot and is buried in a deep ditch so the water is carried away from the house. We have a set of stocks and dies and my husband cut the pipe and installed sink and pump. We purchased our sink because it was such hard work to carry the water away, and in winter it was very disagreeable to put on rubbers, sweater, hat and mittens so many times a day and wade out through the snow to empty waste water. The men and children can now wash without getting water on the floor and it does not need cleaning so often. It also helps out on wash day when we are all tired. It makes everything easier, as I use it all day and every day and would be lost without it. I have white oilcloth pasted on the wallpaper back of sink. It is very easy to clean; a damp cloth with a little soap will take all dirt off. I think a white sink with white oilcloth, if kept shining and clean, is ornamental as well as very useful. It also makes the home look nicer since we have a large kettle to put peelings and other scraps in so there is not one thing around to breed flies in summer, or make it unsightly in winter.

Must Know Fabrics When Removing Stains

EVELYN G. HALLIDAY.

To remove stains successfully from all kinds of fabrics without injuring the fabrics themselves, it is necessary to know that animal fibres are readily destroyed by alkalies, while vegetable fibres are attacked by all but the weakest acids, but are not affected by alkalies.

To remove stains from cotton and linen, then, it is quite safe to use rather strongly alkaline javelle water. This is prepared by placing one pound of washing soda in a porcelain-lined kettle and adding one quart of boiling water. To this add the clear liquid which separates off when one-half pound of chloride of lime is stirred into two quarts of cold water and the mixture allowed to settle. This solution should be bottled and kept in a dark place. To remove stains, dilute the javelle water with an equal volume of hot water, and soak the stain in the solution until it disappears.

Probably the best reagent for removing stains from silk and wool is 3 per cent. hydrogen peroxide to which is added four volumes of water and one volume of ammonia. The stain should be soaked in this mixture for a few minutes, then dipped in a 10 per cent. solution of sodium bisulphide. If the stain is persistent, it may be necessary to repeat this treatment several times, exposing the fabric to the sun and air between treatments.

It is perhaps not necessary to add that bleaching solutions can be used with white goods only, as any reagent which will remove stains will also remove colors.

Colorado Agri. College.

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

7819.—Ladies' waist. Cut in sizes 36 to 44 inches bust measure. Linen, madras or crepe de chine can be used for this waist, with the collar and cuffs of contrasting goods.

8202.—Girls' middy dress. Cut in sizes 4, 6, 8, 10 and 12 years. The blouse slips on over the head and the separate one-piece skirt is plaited.

8207.—Misses' dress. Cut in sizes 16, 18 and 20 years. The sleeves may be long or short and the skirt is cut in two gores.

8194.—Girls' dress. Cut in sizes 8, 10, 12 and 14 years. The dress is cut in one piece, has a vest and long or short sleeves.

8200.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. This waist has a shield and long or short sleeves.

7846.—Ladies' apron. Cut in sizes 36, 40 and 44 inches bust measure. Linen, gingham or calico can be used for this apron, with the trimming of plain or contrasting goods.

7900.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in four gores and closes at the front.

7823.—Girls' dress. Cut in sizes 6 to 14 years. Dress has a plain guimpe and a two-gored plaited skirt.

8210.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in four gores and is plaited at the sides.

8193.—Ladies' house dress. Cut in sizes 36 to 44 inches bust measure. Long or short sleeves may be used, the blouse is plain and the skirt is cut in three gores.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

Rye Flour Receipts

For the farm housewife possessing an abundance of rye flour and who is desirous of saving wheat flour costs, the following receipts suggested by Miss Pearl MacDonald, in charge of home economics extension at the Pennsylvania State College School of Agriculture and Experiment Station, should be helpful:

RYE GRIDDLE CAKES.—2½ cups flour (half rye and half wheat), ½ teaspoon salt, 1¼ teaspoons soda, 2 cups sour milk, 1 egg, if desired, 2 tablespoons melted butter, if desired. Egg and fat can be omitted with good results. Add liquid gradually to sifted dry ingredients. Beat to a smooth batter. If egg is used, it should be mixed with the milk. Butter is added at the last.

RYE GINGER BREAD.—1 cup molasses (scant), 1 cup sour milk, 2½ cups flour (half rye and half wheat), 1½ teaspoons soda, 1 teaspoon ginger (more if desired), ½ teaspoon salt, 3 tablespoons melted butter. Mix soda with sour milk and molasses. Sift remaining dry ingredients together. Combine mixtures, add butter. Beat vigorously. Pour into a shallow buttered pan. Bake 25 minutes or longer in a moderate oven.

RYE MUFFINS.—Two cups flour (half rye and half wheat), 3½ teaspoons baking powder, ¾ teaspoon salt, 2 tablespoons molasses, 1 egg (2 if desired), 1 cup milk, 1 tablespoon melted butter. Mix and sift dry ingredients together. Beat egg, combine with milk and molasses. Add gradually to dry ingredients, beating until smooth. Add butter. Bake in hot, greased gem pans.

Earning Extra Money

Perhaps my way of earning spending money may not be considered practical for women on the farm, but the fact that I have done it much of the time for the past 25 years and yet lived on a farm 2½ miles from town, makes me think that there are many other women who might earn money in a similar way, if they would only think so.

Much of the time since I have been married I have either sung or directed (and sometimes both) in the church choirs of our nearest town, which has a population of 4000. I did not have any special training for the work; just a few instrumental lessons and the same in voice culture. When the first offer came, from my own church, I told the chairman of the music committee that I had had no experience in directing or training a chorus choir and did not feel qualified to attempt it. He answered frankly, saying: "I know you don't know anything about it, but you have a voice; go ahead and do the best you can."

I took the "bitter with the sweet" and went ahead and did the best I could, but I am sure I learned more from that first experience than any member of the choir. For the nine choir months of the past year (we have three months vacation) my church paid me $160. That means that I have had to make two or three trips to town every week of those nine months, and that one or two of them were made at night. Without the cheerful and willing co-operation of my husband (and he is not a choir member or especially fond of church music, either) I could not have done this, as there were many rides which were decidedly unpleasant and sometimes unsafe, and could not be taken alone.

Every woman on a farm needs a certain amount of outside diversion, and I found that doing the choir work was no more taxing than clubs and thimble parties, etc., but was much more satisfying and pleasant, as well as profitable. It has also made me more careful of my health, for I found I could not overtax myself and still be able to do my work satisfactorily. I think that that has really been of more value to me than the hundreds of dollars I have earned.—Mrs. M. P. L., Silver Springs, N. Y.

What Our Farm Women Ask and Answer

Miss C. G., Pennsylvania, in a letter to us, says: "I see Mrs. E. S. wishes a receipt for mush. Here is one that never fails me: One quart of granulated yellow corn meal, 1 small tablespoonful of salt, one pint each of fresh milk and cold water. I wet the meal with this, then add two quarts and a pint of boiling water, stirring continually until it thickens. Take the spoon out, put on the lid, set it back where it will continue to boil, but not too fast, for 2½ or 3 hours, stirring occasionally. We have it for dinner or supper with milk, then I wet a dish with cold water and pack the rest in it for frying. You can smooth the top by wetting a knife in cold water and drawing it over the top."

To make mush Mrs. M. E. W., Pennsylvania, suggests taking 2 quarts of water, 1½ pints corn meal, ½ pint wheat flour and 1 tablespoonful of salt. Let water come to a boil, mix meal and flour with cold water until thin enough to stir in water and boil until it is well done; put a little sweet milk in if wanted to brown quickly.

Mrs M. H. K., New Jersey, says that she adds raisins to a portion of her mush before putting it in pans, to eat with cream or milk and sugar.

Mrs. L. A. E., Maryland, suggests substituting graham flour for the white flour called for in some receipts.

Mrs. A. D. A., Pennsylvania, gives us a new idea when she writes: "On very cold mornings I place my bag of clothespins in the oven and then when I am ready to hang out the clothes and my hands get cold I place them among the warm pins a few minutes and then find I can keep on until nearly all the pieces are up. I tried using canvas gloves but they made me too slow and awkward in handling the small pieces."

It is a sign of approaching spring when F. Z. H., New York, asks us to print the formula for government whitewash. We have always understood that this was made as follows: Take a half bushel of unslaked lime, slake it with boiling water; cover during the process to keep in steam; strain the liquid through a fine sieve or strainer. Add to it a peck of salt, previously dissolved in warm water, 3 pounds of ground rice boiled to a thin paste and stirred in while hot, half a pound Spanish whiting and 1 pound of glue, previously dissolved by soaking in cold water, and then hanging over the fire in a small pot hung in a larger one filled with water. Add 5 gallons of hot water to this mixture, stir well and let it stand a few days covered from dirt. It should be applied hot, for which purpose it can be kept in a portable furnace.

Mrs. A. V. B., New York, asks us: "1. How can I make my cakes 'lighter,' and what causes them to rise like a mountain in the middle? 2. Is there any way to restore the color of faded carpet?"

Miss M. M., Pennsylvania, asks us: "How do you put up strained honey and wax for market? Does it sell best put up in small or large quantities? Where do you sell it and what prices do you charge?"

Miss C. S., Pennsylvania, would like to know of some ways to use up fruit syrups, as they have so much of them on hand.

Thousands of Satisfied Users

Testify to the efficiency and economy of the Caloric Pipeless Furnace. We've a book of letters written by people who once struggled to keep warm with stoves or old-fashioned heating systems and who finally installed the one-register Caloric. The satisfaction these letters express is absolutely convincing. Here is one that is typical of many:

"I have a large three-story, eleven-room house and can show 72 degrees in third story rooms before 7 A. M. The Caloric produces more heat from less coal than any other kind." MAHLON FRETZ, Sellersville, Pa.

This is concrete, direct-to-the-point evidence. It establishes the

PIPELESS CALORIC FURNACE

The Original Patented Pipeless Furnace

as the most sensible and economical furnace built. Why not install one in your own home, add to your comfort, lessen your labor and cut your fuel cost? This can be done without inconvenience at any time.

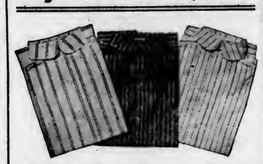
The Caloric heats from *one register*, so there is only one register hole to cut. Saves 35% of fuel because its heat is direct, and because a patented triple casing prevents radiation into the cellar. There is no furnace in the world so easily installed as the Caloric or so absolutely satisfactory. The original pipeless furnace is backed by a broad guarantee.

There is a Caloric dealer in your town—see him soon. If you do not know who he is, write us and we will tell you.

Let us send you a free booklet containing our remarkable guarantee.

The Monitor Stove & Range Co.
4625 Gest St. Cincinnati, Ohio

Boys' Blouses, Special



These 3 Blouses, 2 in Light Colorings, 1 dark } $1.10

One of the best offers of its kind we have ever been able to make. The Blouses are of a quality found in most stores at 50c each. We will sell them only in lots of 3 in one size: 2 in light colorings, 1 in dark effects—our selection. The patterns are all neat and pretty and we know you will be pleased. Sizes 8 to 15 years. The 3, delivered free for $1.10. Can be returned AT ONCE if not satisfactory and money will be promptly refunded.

STRAWBRIDGE & CLOTHIER
PHILADELPHIA

Indoor Closet

More Comfortable, Healthful, Convenient

Eliminates the out-door privy, open vault and cesspool, which are breeding places for germs. Have a warm, sanitary, odorless toilet right in your house. No going out in cold weather. A boon to invalids. Endorsed by State Boards of Health.

ABSOLUTELY ODORLESS

Put It Anywhere In The House

The germs are killed by a chemical process in water in the container, which you empty once a month. Absolutely no odor. No more trouble to empty than ashes. Closet absolutely guaranteed. Write for full description and price.

ROWE SANITARY MFG. CO., 283 ROWE BLDG., DETROIT,
Ask about the Ro-San Washbowl—Hot and Cold Running Water Without Plumbing MICH.

Better Quality

At Wholesale Prices

Direct from manufacturers, who can save you $10 to $30 on the best range made. Newest designs—white enamel splasherbacks, etc. Write for Catalog. Take a Kalamazoo on our 30 days' trial plan and see what you can save. We pay freight—quick shipment. Ask for Catalog No. 194.

KALAMAZOO STOVE CO.
Manufacturers
Kalamazoo Michigan

A Kalamazoo Direct to You

30 Days Trial of the "EASY" Vacuum Washer takes you away from washboard drudgery forever. Try it now before the heavy washing drags the life out of you by the old laborious process. See how it seems to have the washing easy for one month. Write today for information.

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5100 E. Water St., Syracuse, N. Y.

LADIES You can easily earn $25.00 a week—in Spare Time selling our beautiful line of washable fabrics to your friends and neighbors. Don't Waste Time—Write Today. Send for Free Samples and particulars. References Desired.

Old Colony Textile Co., Dept. O.K., 298 B'way, N.Y. C.

THIS COFFEE WILL PLEASE YOU

We want every man or woman who enjoys rich coffee to try Reid's No. 7—roasted and cured by a secret process which eliminates many objectionable features. Praised by leading physicians. A rich, fragrant blend making at least ten extra cups to the pound. Our three pound package mailed anywhere for $1.00.

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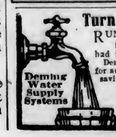

Turn a Faucet—Don't Pump

RUNNINING water—one of the city's greatest conveniences—may now be had in every farm home.

Deming Bulletin No. P-2, tells how. Send for and study this free book—learn the labor-saving convenience and the ultimate economy. Deming water systems bring greater home comforts and easier working conditions.

The Deming Co., Salem, Ohio.

SAVE 10 CENTS A POUND USING GILLIES BROKEN COFFEE

FROM WHOLESALER DIRECT 25c LB.

SMALL and broken beans of regular 35c Coffee. 5 pounds delivered Free within 300 miles, 10 pounds delivered within 1000 miles. Satisfaction guaranteed or money refunded. Bean or Ground

GILLIES COFFEE CO., 233-239 Washington St., N.Y.
Established 77 Years

—TIRES—

Double Tread—Double Wear

Our many years of experience in improving the double-tread tires has enabled us to give the tire consumers a tire that will give as much mileage for ½ the price of any tire on the market. Following are the prices if you send us your old tire:

$1.00 EXTRA NON-SKID

Sizes	Plain	Sizes	Plain
30x3	$5.00	36x4	$8.00
30x3½	5.50	34x4½	8.00
32x3½	6.50	35x4½	8.50
33x4	8.00	36x4½	8.50
34x4	8.00	37x4½	9.00

If you have no old tire, we will furnish you a complete double-tread tire at the following prices:

Sizes	Price	Sizes	Price
30x3	$6.00	36x4	$10.50
3 x3½	7.00	34x4½	11.00
32x3½	8.00	35x4½	11.50
33x4	10.00	36x4½	12.00
34x4	10.00	37x4½	12.50

R. K. TIRE COMPANY
837 No. Broad St., Philadelphia, Pa.

Send today for descriptive circular and price list. Some good territory still open for hustling agents.

Look Out! High Grade Hand Horn

No Batteries Needed

For $2.25

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Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

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CHAPTER VII.

A CONFIDENTIAL CHAT.

"I believe," said young Mr. Thompson, "that I've been owing you a little bill for some weeks, Miss Dale. It had completely slipped my mind."

He looked old and worn, Persis thought, more like the man who must settle for the spring finery of a family of grown daughters, than a complacent young husband paying for his wife's first new gown since the wedding. There was a flatness in his voice that matched the weariness in his eyes, and forthwith a dozen questions raced through her alert brain.

"Well, Mr. Thompson, I hope you like the dress. I always tell my customers that I'm as anxious to please their husbands as I am to please them. 'Tain't fair, from my point of view, to ask a man to pay out good money for clothes he just despises."

Evasion is an art possessed in its perfection by few of the sterner sex.

"Mrs. Thompson hasn't worn the dress yet," explained Mrs. Thompson's husband. "I dare say it's very pretty." He had taken a little roll of bills from his pocket, but his absent air showed conclusively that he was thinking neither of them nor of his answer.

Persis lowered her voice confidentially.

"If I was you, Mr. Thompson, I wouldn't encourage her in that way of doing. Maybe it seems like prejudiced advice, coming from a dressmaker, so, but I never could see there was any saving in hanging a dress away in the closet and not getting any wear out of it, till it was clear out of style. You know how it is with young wives. They've got their hearts so set on having their husbands praise 'em for saving that they make those little mistakes. You just tell her that you'd rather spend a little more money, if it came to that, and see her look her prettiest."

"Mrs. Thompson is not"—began the young husband and broke off uncertainly. His troubled eyes went to the kind, resolute face opposite, and the little roll of greenbacks dropped to the floor unheeded. "Fact is," said the young fellow, carried away by that impulse toward confidence which the sight of Persis was likely to inspire in the least communicative, "fact is we're having the deuce of a time."

Persis nodded understandingly. "That ain't strange the first year or so. After the honeymoon's over, then comes the getting acquainted. I don't care how well folks have known each other beforehand, they've got to start all over again after they're married. But don't worry; it don't take long as a rule."

"You don't quite get my idea." Young Mr. Thompson scowled at the floor. "It's worse than you think. I'm in a fix, a devil of a fix. Part of it I'm to blame for... I'm one of those guys with a sense of humor, you know. I'm the regular George Cohan kind, and between my practical jokes and some interfering old maids—I—I beg your pardon."

"I'm not partial to 'em myself," smiled Persis re-assuringly.

There was an instant of understanding silence. "Well, anyway," groaned the young man, "with a little outside help, I've queered myself for good. And that's tough on a chap not a year married, believe me."

He stared at the floor gloomily and when he lifted his eyes, she saw the whole story on its way. "You wouldn't call Thompson an unusual name, would you?"

"One of the commonest, I should say."

"And there's nothing so strange about 'W. Thompson' that you'd strain your neck getting another look at it on a sign. Half the men you meet are named William, to say nothing of the Walters and the Warrens, and the new crop of Woodrow Wilsons."

Persis' murmur of agreement was admirably calculated to encourage the flow of confidence, not to check it.

"Look at that." Young Mr. Thompson pulled a letter from his pocket and slammed it down on the table. "There's the proof that I'm a hound and a blackguard and that hanging would be too good for me. At least that's what all the women tell my wife. And take it from me, they know."

Persis picked up the envelope and studied the superscription. It had originally been addressed to Mr. W. Thompson, Hollenden Hotel, Cleveland, Ohio, and later redirected in another hand to the firm by which Mr. Thompson was employed. The unhappy husband explained:

"Our men generally stop at the Hollenden when they are in Cleveland. I never was there in my life. But Hudson, one of our fellows, blew in one night and noticing a letter directed to W. Thompson, he knew, of course, it must be for me. That's just the sort of 'buttinski' that Hudson is. If he'd run across a tombstone with W. Thompson on it, he'd have expressed it to me before he'd eaten his dinner. So he told the clerk he knew me and sent the letter on to the main office. Now, perhaps you'll appreciate the rest of my story better, if you'll read the letter."

Gratified by the permission, for young Mr. Thompson had succeeded in piquing her curiosity, Persis drew the enclosure from the envelope and for an instant studied the monogram at the head of the sheet. When her gaze dropped to the address, her eyebrows lifted.

"Yes, I know," murmured young Mr. Thompson. "'Tommy darling.' Tommy is short for Thompson, I suppose. Tommy-rot, I call it. You might read it aloud if you don't mind. It'll help me to have a realization of what I'm up against."

"Tommy darling:

"Here I am writing you again for all I promised myself that I wouldn't—not ever. It makes me feel so dishonorable when I think of Her. And then, dear, I think of you and everything else is forgotten for a little while.

"That lovely, sad, happy, heart-breaking afternoon together! I've lived on the memory of it ever since. I thought when we said good-by that it was for the last time. I really meant it, dear. But now the thought of never seeing you again is like a great black wall shutting out everything bright and beautiful. I'm not brave enough to bear it.

"Tell me when and where we can see each other, Tommy. I'm not going to think of Her, but only of you and me and the joy of loving and being loved. "Enid."

"She seems," observed Persis Dale, folding the letter carefully, "to be of a real affectionate disposition." Young Mr. Thompson passed the comment over without remark.

"They gave me the letter at the office. It was pretty near a month after it was written and I judged the two of them had seen each other before that, and one lost letter wouldn't matter. And then it occurrred to me that I'd have a little fun with Molly. Get me?"

Persis' look indicated understanding rather than approval.

"You can't think worse than I've said to myself a thousand times. I put the letter in my pocket, and I had it all figured out how she'd find it and ask me about it, and then read it and be angry for about half a minute. And I took it for granted that I was going to be right there to explain and that I'd have the laugh on her before she had the chance to get to feeling real bad. It looked awful funny to me. It's a great thing to have a man-size sense of humor."

Persis was too interested to smile.

"Then the weather got warm and I changed to another suit and forgot to change the letter. I'd laid several little plots to help her to find it, like sending her to my pocket for postage stamps, but she didn't fall to 'em, and finally the letter got to be an old story. I pretty nearly forgot all about it. When she did find it, I was off on a trip and she'd talked the thing over with all the old women in the neighborhood before I got back." He ran his fingers through his hair. "Explain! Well, she thinks it's a mighty slim story, and the deuce of it is that she's right. Any darn fool could make up a better one."

"I believe you could have done better yourself," Persis suggested smoothly, "if you'd been in the story business."

The young fellow looked at her, and a quick flush swept to the roots of his hair.

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"That sounds," he began breathlessly, "that sounds as if you took stock in me in spite of the way things look."

"I've lived long enough to know that looks are deceiving whether you're talking about women or just things." Persis studied the address again and compressed her lips. "See that this letter don't get lost, strayed or stolen," she directed, with that instinctive assumption of authority which is the badge of the competent. "We might find it useful in clearing things up."

The young man's ruddy color rose again. "Then you think—" he faltered and broke off.

"I think that when folks act fair and square their lives ain't going to be ruined by a little mistake. Of course it's going to be cleared up. Careful, Mr. Thompson. You seem to be stepping on a lot of money. And it must belong to you, because I can't afford to carpet my room with greenbacks."

His answering laugh showed the contagion of her optimism. Young Mr. Thompson picked up his money and paid his bill. "I'm going home and coax Molly into putting on that new dress," he declared boyishly. "It's the first dress I ever bought for her, and I'm crazy to see how she looks in it."

Persis approved the suggestion. "But don't be discouraged if she needs a lot of coaxing. It's as natural for women to primp and fuss and fix their hair up pretty ways when they're feeling happy as 'tis for plants to put out leaves in the spring. But heavy hearts are like winter weather. If you want any blossoms in December, you've got to work for 'em." She wrote "received payment" beneath Mr. Thompson's bill and went to the secretary for the change. Young Mr. Thompson pocketed his forty-five cents and detained the hand that tendered it.

"Look here, Miss Dale," he said, "you've braced me up wonderfully. I feel more like a man and less like a feather-bolster than I did when I came in. I wonder if you couldn't—" He hesitated and pressed her fingers persuasively. "Couldn't you manage to drop a hint to Molly about appearances being deceptive, you know?"

"I'll say more than that before I'm done with her," Persis promised briskly. And they shook hands over again, and young Mr. Thompson departed with an alert step that argued a corresponding lightness of heart. And because Persis Dale was a woman of action, she sat down at the secretary and penned a letter to a total stranger, to Mr. W. Thompson, care of the Hollenden Hotel, Cleveland. The letter itself was brief and to the point:

"Dear Sir:

"I should like to know if you are expecting word from a young woman named Enid. In case you are, kindly communicate with the undersigned.

"Yours truly,
"Persis Dale."

Brief as the letter was its composition took some little time. The deftness which characterized Persis in most of her work, did not extend to her epistolary efforts. She was still puckering her forehead over the page when Thomas Hardin knocked. The door was ajar and glancing over her shoulder, she called to him to enter.

"You'll excuse me for not getting up, Thomas. When once I sit down to an ink bottle, I stick to it till I finish. I'm in a hurry to get this letter off tonight." She wrote the address and dried the ink by moving the paper gently back and forth.

Thomas' face showed relief. He had come prepared to make a painful disclosure and the brief period of waiting was as welcome as similar postponement to the possessor of an aching tooth who calls at the dentist's office and finds the practitioner busy. But as Persis immediately proceeded to fold the letter and seal the envelope, his respite was brief.

"Persis, did you know there was insanity in my family?"

Persis, applying a crumpled stamp to the tip of her tongue, started violently. "Good gracious, Thomas, no! I never heard it mentioned."

"I thought maybe 'twas my duty to speak to you about it. It was my great-uncle, Captain Silas Hardin. He was my father's uncle, and he—"

"Why, I know all about him, Thomas. How he was shipwrecked off in the Indian Ocean somewhere and floated around on a raft, and the different ones got crazy with the heat and thirst and all jumped overboard. And it was an English ship that found the old captain, and he was just raving when they took him aboard. I can remember him when I was a little girl. There was a blue anchor tattooed on his hand, and I thought it was the most wonderful thing in the world. But then he was as sensible as anybody."

"Yes, he was all right in his later days, but when he first came home from England, he had lots of queer ways about him, I've heard my mother say. And as long as he lived, he'd stand off and stare at the corner of the room where there wasn't nothing with his eyes kind of fixed, and it was enough to make your hair rise up to look at him."

"I don't wonder, poor soul. I guess if we'd seen what he had, there'd be times when it would all come back to us. By the way, Thomas, seeing as you go right past the post-office, I'll ask you to mail this letter. I want it to be sure to get off the first mail."

Thomas tacitly accepted the commission by holding out his hand for the letter. Then he read the superscription. "W. Thompson! Why, there's a W. Thompson in Clematis."

"This," replied Persis, and the confidence of her tone would have warmed the heart of young Mr. Thompson, "this is a different one."

Thomas waited to hear more, but no further particulars were vouchsafed. He felt mildly aggrieved. "Didn't know you had acquaintances in Cleveland," he suggested by way of a stimulus to confidence.

"I haven't many." Persis compressed her lips, and Thomas looked again at the envelope. The sense of elation due to the discovery that Persis was disposed to regard the insanity of Captain Silas Hardin lightly, was eclipsed by a new anxiety. Persis had friends of whose existence he was unaware. She corresponded with men in distant cities. These apparently trivial facts took on greater import as he mused. His own chances to win her, dishearteningly small at the best of times in view of his checkered record, suddenly sank below the level of insignificance and ceased to exist.

He looked across at Persis on the other side of the table. She had picked up a piece of sewing, but her look of absorption showed that her trained fingers were doing their work without the supervision of the brain. Nor could he flatter himself that her thoughts were of him. He was a modest man, but for the moment he resented with bitterness the self-evident fact that she was temporarily oblivious to his presence.

He got to his feet, pushing back his chair noisily. "Maybe I'd better be going, so's your letter will be dead sure to get to the post-office on time," he said, his voice harsh with disappointment.

Persis stooped to bite a thread. "Thank you, Thomas," she answered placidly. "I'll be easier in my mind when I know it's mailed."

CHAPTER VIII.

EVE AND THE APPLE.

Joel was aggrieved. For the second time in a month his sister was planning to desert him. Putting the claims of an unborn infant before his comfort, Persis had basely abandoned him to the wiles of Susan Fitzgerald. And now she had agreed, though reluctantly, to do a day's work for Mrs. Hornblower at the latter's home. That thrifty housewife had urged a lame knee as her reason for requesting Persis to depart so radically from her usual custom, and Persis had accepted the excuse with reservations.

"Fact is, Lena Hornblower can never get it into her head that I'm a dressmaker and not a sewing girl," Persis confided to Joel at the breakfast table. "I'm not saying that her knee ain't lame, but I guess if she can stand up to be fitted, she'd be equal to getting in and out of a buggy. Lena Hornblower's always looking for a chance to save a penny. She's got an idea that it's bound to be cheaper to have your sewing done at the house. All I can say," concluded Persis, buttering her toast, "is that she's going to find herself mistaken."

Joel's abstracted gaze indicated a total lack of interest in the subject.

"I've been thinking, he remarked with that suavity of manner as prophetic of a storm as thunder-claps in July, "that I might as well get me a room somewhere in the neighborhood. There's no sense in making a pretense that you're keeping house for me when you're gadding and gadding, here today and tomorrow off the Lord knows where. If I had a comfortable room, somewheres," continued Joel, with the noble resignation of conscious martyrdom, "and a little stove so's I could get my meals, then I'd know just what to expect, and I wouldn't have to ask no odds of nobody."

Persis had listened to similar propositions before. It was a perennial threat which in the passing of years had lost its power to terrify. Yet with the inevitable feminine impulse to smooth the feathers of ruffled masculinity, she began, "When I drove by Susan Fitzgerald's yesterday morning—"

Joel set down his coffee cup with an emphasis that splashed the tablecloth.

"That'll do, Persis. I'll tell you once for all that I won't have that woman here. I can go hungry if it comes to that, but I won't stand for your putting that old maid up to set her cap for me."

"Goodness, Joel, Susan hasn't any reason in life to want to marry—anybody." Persis had come very near an uncomplimentary frankness, but her native tact had suddenly asserted itself and made the statement general.

Joel smiled satirically.

"Maybe you know better'n I do about that, and then again, maybe you don't," he replied darkly. Then with a reversion to his air of injury, he added: "Here's Hornblower come for you already."

As a matter of fact, the thrifty Mrs. Hornblower had dispatched her husband for Persis at the earliest hour permissible, resolved to prove the economy of her scheme by adding to the activities of the day at both ends. Persis, quite aware of her patron's purpose, smiled comprehendingly and proceeded to clear the table without undue haste or excitement. Mr. Hornblower had waited full thirty minutes before she came lightly down the path and with unruffled serenity bade him good morning.

"Sorry to keep you waiting, but you were half an hour ahead of the time I said."

Robert Hornblower, who had that repressed and submissive air not infrequent in husbands whose wives make a boast of their womanly subjection, mumbled that it didn't matter. As he helped her to her seat, Persis noticed that he had lost flesh since she had seen him last, and that some plow-share, sharper than that of time, had deepened the furrows that criss-crossed his sagging cheeks. "How're the crops coming on?" she asked, as she settled herself beside him.

"Fine!" Mr. Hornblower spoke with a lack of reserve unusual in his pessimistic profession. "Potatoes ain't quite up to last year, but the corn crop's a record breaker."

"Mis' Hornblower's knee trouble her much?"

"Well, no, not to say trouble." Mr. Hornblower plucked his beard with his disengaged hand and cast a thoughtful glance at his companion. "She's a little oneasy in her mind, though, Mis' Hornblower is. She's got an idea in her head and it keeps her as oneasy as a flea. If she should open up to you, maybe you'd see your way to say something kind of quieting."

"But what's she got to worry about?"

"That's what I say," said Mr. Hornblower, gesturing with his whip. "We're comf'table and prosperous, ain't we? Maybe there's a way to get more. I don't say there ain't. But what's the use of more, when you have got enough? The house suits me just as 'tis, and my victuals suit me, and my friends that I've summered and wintered with, forty years and over, they suit me, too. What do I want of a villa, or of trips to Europe, where folks talk all kinds of gibberish instead of good United States?"

"But I don't see how—"

"Maybe she'll open up to you," repeated Mr. Hornblower, lowering his voice though such a precaution was obviously unnecessary. "Mind I don't say it ain't a pretty scheme. Anyhow, it looks good on paper. But with me the point's just here—enough's enough."

(Continued next issue.)

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The Philadelphia Milk Situation

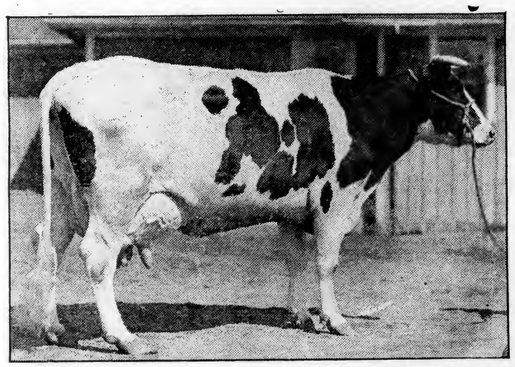
F. P. WILLITS
President Interstate Milk Producers' Association

Possibly the greatest step forward taken by the Interstate Milk Producers' Association is the fact that we are now changing the form of this association to a corporate one, so that we may be better able to work as a unit and obtain for dairymen their just rights. This action was largely influenced by the address of Hon. John J. Dillon, New York Commissioner of Foods and Markets, which was given Feb. 5th in Philadelphia, and which was reported in the last issue of The Practical Farmer. The full address has been printed by the Association and copies of it may be obtained by every dairyman who ships milk to the Philadelphia market by asking our secretary, R. W. Balderston, Kennett Square, Pa., to send them a free copy. The weaknesses and the general dissatisfaction of a gentlemen's agreement under which the Association has heretofore been working were clearly demonstrated by Mr. Dillon, and results have proved that in New York State success has only come to the producers after there was no possibility of several members withdrawing and thus weakening the whole structure so that the movement failed. Likewise the success of the New York dairymen was only accomplished after a large proportion of the milk shippers were included in the organization. We cannot hope for victory until as large or a larger proportion of our producers are bound together and pledged to stand up for their just rights. The local organizations must be strengthened, and one of the greatest works which is to be done at this time is the formation of local units until every man who ships milk to the Philadelphia market is affiliated with us and has pledged his moral and monetary support for the success of this movement.

We have no desire in any way to injure the consumer, but want to protect the producer and secure for him a price sufficient to cover the cost of producing milk and to give him enough profit so that he will stay in the business. We must of necessity look to the middleman for this increase, which is merely to cover the increased costs of production.

This will ultimately be to the best interest of the consumer by stopping a wholesale leaving of the dairy industry, as is happening at the present time by farmers all over our territory. A small increase in price now will possibly prevent the retail price of milk from later reaching unheard of heights when many of the poorer classes in the city will necessarily be compelled to suffer.

Although the public press has in the past opposed our request for an increase of even 10 or 20 per cent, we are still hoping that we may have their support in the future. We have no objection at all to their having had a governors' commission appointed to investigate us. In fact, we had a large number of representatives appear before the Commission and present to them the facts in the case as they stand at the present time. We cannot help but think that the publicity which we received at that time was beneficial to us in presenting our side of the case to the consumer, especially as consumers are well aware at the present time of increases all along the line, in every class of production.



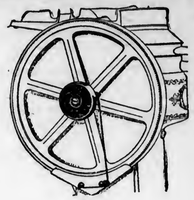
The World's Record "50-Pound Cow," Segis Fayne Johanna. *See article on page 110*

Within the last few weeks in Philadelphia the public press organized and successfully carried out a plan which is a very instructive lesson for the dairymen. The selling price of newspapers, through a concerted action of nearly all the publishers, was doubled without protest from the readers. As the newspapers are the chief instruments of public opinion, no unpopular clamor was raised because of this increase in price. This is only another case where the producer is organized with sufficient strength to set the price of his product and not be compelled to receive for it just what the purchaser thinks he should pay. In this case the readers of newspapers are not even going to ask for the appointment of a commission to investigate the cost of publishing, etc., although the price has been increased 100 per cent.

In the past we dairymen, merely for the sake of the independence which we felt we were receiving, have been too ready to market our product separately. Truth is too often the only real independence we have had has been the pleasure of milking the cows, as some one else has told us how much we were to receive for the milk and what we had to pay for the feed and other products used on the farm. Today on all sides we see organization working effectively and it is up to us to either do likewise or fall behind. Every milk producer who ships to the Philadelphia market should join the Interstate Milk Producers' Association so that if occasion should rise that our products must be marketed jointly we will have an organization strong enough to accomplish its purpose.

In the work so far accomplished I cannot help but say a good word for the results obtained by the county agents in the localities which are fortunate in having a farm bureau. Success of the work in New York was greatly the result of county agent help and I feel sure that the aid which they have already given the movement in this territory has resulted in a great deal of good.

Ward, Penna.



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Other tests made by the highest authorities have shown conclusively that there is a big cream loss when the cream separator is not turned fast enough.

You will avoid such a possible cream loss if you buy the New De Laval. The Bell Speed Indicator on the New De Laval is a "warning signal" that insures proper speed at all times. No matter who runs your De Laval, this "warning signal" will tell you when the speed is not right. You hear it and do not need to see it. This one feature alone may easily save you the cost of a cream separator in the next few months.

But that is only one of the big advantages of the New De Laval. Other advantages are greater capacity, closer skimming and easier turning, simpler bowl construction, and easier washing.

Why not see the nearest De Laval agent at once? If you do not know him, write to the nearest office for any desired information.

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50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

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Raise Your Calves on
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Prevents scouring and insures the early maturity of sleek, handsome calves.

It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 99 Waukegan, Ill.

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Man to Wear Fine Suit, Act as Agent Big pay, easy work. Banner Tailoring Co., Dept. 502, Chicago

Breeds of Sheep

The farmers in the East are becoming very much interested in sheep raising. This is no doubt due to the increasing demand for mutton products, which is indicated by the price of lambs at the present time. There is also a marked shortage of wool in this country, and the world at large. The result of this shortage of wool means prevailing high prices for it and fine profits from both wool and mutton, even though all grain crops are high in price. Much of this wool and mutton can be produced from the use of forage crops or roughage of one kind or another, the price of which has not gone up in proportion to grain feeds.

This general interest in sheep among farmers will mean that a greater number will establish flocks upon their farms during the coming year. They will do so by buying comparatively high priced breeding animals, whether grades or pure-breds. In many instances they will be confronted with the problem of selection of the breed. This selection of the breed must be decided by the person establishing the flock of sheep after he has a full knowledge of the different breeds and the conditions under which they will thrive best.

Since the readers of The Practical Farmer will be interested in this subject we will begin a discussion of the more prominent breeds during the next few issues. We will not try to tell which is the best breed or which one our readers should select, but we will discuss the origin of each, the conditions under which it has been developed and the places to which it is best adapted, also the general characteristics of each breed so that it may be possible to tell one from another. There are a large number of breeds, but it will not be necessary to discuss all of them, as some have never gained in popularity and are not well adapted to American conditions.

Sheep are divided into three general classes, or types, based on the type of the fleece and the size of the sheep. They are as follows: Long wooled, medium wooled and fine wooled. They also rank in this same order when considered from the point of view of size.

THE SHROPSHIRES.

This breed of sheep originated in England in the county of Shropshire, from whence the name is derived. By many they are regarded as being a general-purpose breed, as they produce a good yield of both wool and mutton. It is possibly for this reason that they are so well thought of in England.

The Shropshires were first brought to this country just prior to the Civil War. The first importation was made into Virginia in 1855. Frequent importations followed the war, and today it is one of the most prominent breeds in the United States.

The Shropshires can be recognized from the other breeds by their uniformly dark brown face and legs. The face is well covered with wool past the eyes. The fleece is usually quite dense, and of medium length. In the last issue of The Practical Farmer appeared an excellent photograph of a Shropshire ewe, showing splendid type and breed characteristics. The weight of mature sheep in good condition of flesh is 175 to 225 pounds for rams and 150 to 200 pounds for ewes.

This breed is well adapted to average farm conditions, as it supplies a desirable amount of both wool and mutton of good quality. It is the most popular medium wool breed found in the United States at the present time.

The American Shropshire Record Association was organized in 1884. It has issued a number of volumes of its flock book. The office of the secretary of the Association is Lafayette, Indiana.

(Other breeds will be discussed in our next issue.)

Save the Young Pigs

With the prevailing price of feed, the cost of carrying the brood sows through the winter will be higher than any previous year. This being the case, it is highly important that all the young pigs that are born be saved. The only returns received from the feed allowed the brood sows is in the form of young pigs born and raised. This also determines the initial cost of the young pigs. If it costs $25 per year to maintain a brood sow and she produces one litter of 10 pigs, the initial cost of the pigs would be $2.50 per head at weaning time. If she raises only six up to weaning time, the initial cost would be a little over $4 per head. Thus it will be seen that it is important to have each sow produce two litters per year if conditions are favorable, and that it is good business to try to save all the young pigs that are born.

The method of handling the brood sows at farrowing time often has a marked influence upon the condition of the litter and the number of young pigs that are saved. Several days before the sow is to farrow, her ration should be reduced and a part of the feed allowed should be of a bulky nature, such as bran. Reducing the feed will have a tendency to keep the system of the sow in good condition and will not make her so feverish at the time of farrowing. Overfeeding just before and after farrowing is often the cause of sows being unruly. As soon as the sow has farrowed and seems to be unruly and there is danger of her stepping on the little pigs, they should be removed and put in some warm place, and put with the sow every few hours for nursing. If the sow is quiet, it will not be necessary to remove the pigs, as she will care for them.

After the sow has farrowed, she should receive nothing but luke-warm water with a little meal for about thirty-six hours. Such treatment may seem like starving her, but such is not the case. It will help reduce any feverish condition, keep down the flow of milk and guard against milk fever. A couple of days after farrowing the feed may be gradually increased so as to supply plenty of milk for the litter. The young pigs should have access to sunlight and exercise as soon as possible, because these are fully as important as feed. If they are closely confined they will not do as well.

Self-Feeder for Hogs

Now is the time to build a self-feeder for your spring pigs. Where a few boards about the place can be used and odd times spent in the construction practically no cost is entailed. In case new lumber is purchased and a mechanic hired the cost may be kept below $10. The self-feeder not only acts as a great

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P. M. Sharples made the first separator in America (38 years ago). Sharples has been the foremost and highest-class American separator ever since. The Sharples Separator factories are the largest and longest-established in America. Sharples machines are found in every dairying country of the world. The *reason* for this popularity is that Sharples separators have invaluable patented advantages found on no other make.

SHARPLES
SUCTION-FEED CREAM SEPARATOR

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—the *only* separator that gives cream of unchanging thickness—all speeds
—the *only* separator that will skim your milk quicker when you turn faster
—the *only* separator with just *one* piece in the bowl—no discs, easy to clean
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The Sharples has entered a *new field of cream-saving which no other separator has yet touched.* This is owing to the wonderful Suction-feed, which enables clean skimming at widely-varying speeds—which saves $100 yearly (sometimes more) on the average farm, *over every other separator.*

The Sharples is not only *capable* of doing good work, but *will always* automatically do good work under the most unfavorable conditions. We have spent years of experiment in perfecting a separator that is an Insurance Policy against Carelessness. That ideal has been realized in the Sharples Suction-feed. Write for catalog to Dept. 40.

Sharples Separator Co., West Chester, Pa.
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Branches: Chicago San Francisco Portland Toronto

SLOANS LINIMENT

keeps your stock in good condition. Full directions in package will show you many uses for every member of the barn yard family.

Thousands of farmers indorse Sloan's Liniment for pains and aches, sprains and bruises. At all dealers, 25c. 50c. and $1.00 a bottle. The $1.00 bottle contains six times the 25c. size.

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High or low wheels—steel or wood—wide or narrow tires. Steel or wood wheels to fit any running gear. Wagon parts of all kinds. Write today for free catalog illustrated in colors.

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SAFEGUARD your stock, tools, hay and grain. The farmer needs fire protection even more than the city dweller. Most of the great "skyscrapers" of America are fireproofed with Natco Hollow Tile. Fireproof your farm the same way. Natco Barns need practically no repairs—age and weather-proof. The Hollow Tile walls do not hold moisture or odors. Dead-air spaces prevent sudden changes in temperature. And the cost—but a trifle more than frame construction. You will soon save the difference in reduced insurance, coal and repair bills.

Build with Natco Hollow Tile

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Send for our new book "Natco on the Farm." Fully illustrated from photographs. Tell us what you plan to build. We have many farm building plans to submit and will help you—*free*.

Natco Imperishable Silo is the ideal silage preserver. The glazed hollow tile walls are moisture and acid proof and fire-resisting. Stoutly reinforced with steel bands laid in mortar. No hoops to tighten. Any mason can erect a Natco. Fully guaranteed. Truly, "The Silo that Lasts for Generations."

Write *today* for our book, "Natco on the Farm," also ask for Silo Catalog.

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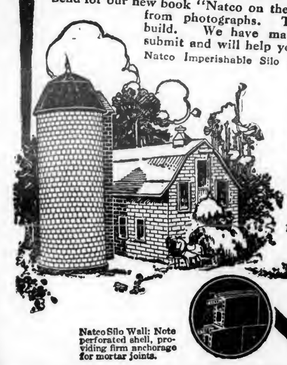

Natco Silo Wall: Note perforated shell, providing firm anchorage for mortar joints.

Are Your Cows a BURDEN?

Many cows are a constant drag on their owners when they could just as well be good producers—if properly handled.

Don't forget that your cows can get physically "off color" just as you sometimes do. Watch the milk yield; if it is going down without apparent reason, something is wrong with the cow. Overfeeding is likely to make the condition worse; she needs a medicine that will clear up and strengthen her organs of production.

Kow-Kure is making thousands of new friends among the best dairymen every year, because it supplies this great need. It is a cow *medicine*, pure and simple—not a food. It has great curative and tonic powers that immediately act upon the digestive and genital organs and enable the cow to thrive on her natural food. Kow-Kure has back of it twenty years of success in making backward cows profitable and in the prevention and cure of Abortion, Barrenness, Retained Afterbirth, Milk Fever, Scouring, Lost Appetite, Bunches and other common ills.

You can buy Kow-Kure from the best feed dealers and druggists. Sold in 50c. and $1.00 packages.

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"The Home Cow Doctor"
This useful book that should be in every farmer's library is yours for the asking. It may be worth hundreds of dollars in a critical moment.

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Grind corn and cobs, feed, table meal and alfalfa. On the market 50 years. Hand and power. 23 styles. $8.50 to $46. FREE TRIAL. Write for catalog and farm machinery bargain book.
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Durable, Powerful, Reliable, Massive. Built to last; to do hard, heavy work. Uses Cheapest Fuel. Pull ½ to ⅓ horse-power more than rated. *3 Months Trial. Easy Terms.* Sizes 1½ to 22 H-P. Easy to start. No Cranking. No batteries. 10 Year Guarantee. Most practical engine ever built. Engine book free. A Postal brings it.
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labor saver on the farm, which at the present time is an item of importance, but it also allows the pigs which are intended for market to select their own rations and mix the feed to suit themselves. Pigs, like other animals, have their likes and dislikes, and the self-feeder system permits the individual pig to meet his own dietary peculiarities regarding what he shall eat, the amount and proportion. All feeds are fed dry, and water is supplied in a nearby trough. The feeder should be constructed with several compartments, so that the different feeds may be supplied separately. This method has actually proved to give the most rapid and economical gains. Shelled corn, wheat middlings and digester tankage make a very satisfactory combination of feeds for market pigs.

Building plans and lumber lists may be had by addressing the Department of Agriculture at Trenton, N. J., and requesting a copy of Bulletin No. 1, entitled "The Swine Industry in New Jersey."

Hog Cholera Losses Nearly $60,000 in 1916

The loss to the farmers of Pennsylvania through hog cholera during the past year is estimated at $58,604 by the State Livestock Sanitary Board of the Pennsylvania Department of Agriculture. State Veterinarian Dr. C. J. Marshall says that public sales were the chief factors in spreading hog cholera, and don'ts to remember are:

"Don't put newly purchased hogs with other members of the herd until they have been kept by themselves for at least three weeks, and not then unless they have shown no symptoms of cholera.

"Don't visit a neighbor's premises where there are sick hogs, and do not allow persons from such places to visit your premises."

Hog cholera can be controlled and eradicated from premises by destroying all affected animals, properly burning or burying their carcasses, and a thorough, repeated cleaning and disinfection of the premises. Sanitation is the most important factor in the control of hog cholera. Hog cholera serum will save the lives of hogs that have been exposed to the disease.

The Fifty-Pound Cow

A new world's record for all breeds for butter-fat production in the seven-day division was established by the pure-bred Holstein-Friesian cow, Segis Fayne Johanna 114656, in a test ending January 8, 1917. This remarkable cow produced 50.68 pounds of butter in seven consecutive days.

Segis Fayne Johanna is the property of Oliver Cabana, Jr., proprietor of Pine Grove Farms, Elma Center, N. Y., and was bred by A. A. Cortelyou, of Somerville, N. J., having been purchased by the present owner at a breeders' sale on January 5, 1913. She is eight years old, weighs now about 1450 pounds, and in color is four-fifths white. Her sire is King Fayne Segis 46767 and her dam is Vikina Johanna 64385.

The test was made in a roomy, clean, white enameled stall, under the supervision of representatives of the New York State Agricultural College, at Ithaca, N. Y. She was milked every six hours. From the time she went dry to ten days before freshening the new champion received the customary rations used at Pine Grove Farms, consisting of 30 pounds of grain, 40 pounds beets and 30 pounds of beet pulp soaked in molasses. She was then fed a test ration of 16 pounds, increasing gradually to 25 pounds, consisting of the following mix-

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Creosote-dipped staves defy the weather; extra strong hoops give stability and strength; tight-fitting, safe-like doors keep the silage sweet; new anchorage system prevents blowing over. A REAL silo in performance as well as in looks. Write for booklet.
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She makes use of every ounce of feed. Her milk is the richest of all the breeds in butter fat and solids. She is rugged and vigorous—will thrive in any climate. She milks steadily. She is beautiful and gentle. She's the mortgage lifter. She's the cow for the everyday farmer, yet she's the rich man's *pride*, too. And she's the cow for the family.

Our free book, "About Jersey Cattle," proves these things. Send for it now—a postal will do—it's interesting and instructive.

The American Jersey Cattle Club
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FOR SALE

Pure bred Percheron and Morgan stallions and mares, two BIG jacks, pure bred bronze turkeys. Ply Rock and Buff Orpington eggs for hatching. All 1st class stuff at LOW prices. C. A. Alexander & Co., Harrisburg, Va.

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Send for FREE *Illustrated Booklet*
The Holstein-Friesian Association of America, Box 270, Brattleboro, Vt.

Utility plus Beauty Butter fat equals money. Buy calves and raise your cows. I have 3 fine registered Jersey heifer calves for sale, at $30 each. W. F. McSPARRAN, FURNISS, PA.

Pure-Bred Holstein Heifers 2 to 3 months old. Prices reasonable. All papers. F. H. WOOD, Cortland, New York.

Registered Holstein Heifer Calf For Sale Nicely marked. Straight, ⅔ white. Excellent breeding. Send for price and pedigree. A. H. HAWKINS, GOSHEN, NEW YORK.

SWINE.

MERIDALE BERKSHIRES

Large, healthy, prolific. Bred and developed under practical farming conditions. Foundation stock always for sale. Address
AYER & McKINNEY
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Duroc Jersey Red Swine

Service boars, $25.00 each; gilts bred for spring farrow, $35.00 each. Shetland pony 2½ years old, for sale or would exchange for pure bred stock. What have you to offer. R. W. McAllen, Fahnestburg, Pa.

Reg. P. Chinas, Berkshires, C. Whites Large strains all ages, mated not akin, 8 week pigs, bred sows, service boars, Collie and Beagle dogs. Grade Guernsey calves and poultry.
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Reg. O. I. C. Swine Bred gilts, service boars and spring pigs, cholera immune, $15-$35 prepaid express. Write your wants. Jacob Whiteman & Son, College Corner, Ohio.

The best live stock today is pigs The best pigs are Berkshires. Ask me about my bunch of four months old beauties.
W. F. McSPARRAN, FURNISS, PA.

Registered O. I. C. Gilts September farrow. Nice stock, price, $15.00. ARTHUR FREEMAN, Pulaski, N.Y.

DUROC JERSEYS. Lengthy, heavy boned, eligible to registry. Prices reasonable. Best of breeding.
J. H. SMITH, R1, St. Marys, W. Va.

DOGS.

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If the Cow had her say it would be "a HARDER SILO"

Better Food Sweeter Silage
EVERY DAIRY FARMER NEEDS THIS
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• Ensilage *can't spoil* in an Economy Silo. Perfect fitting doors make the silo perfectly air-tight. That means fresh, sweet ensilage all the time. Quick, easy adjustment. Strong steel hoops form easy ladder. Built of White or Yellow Pine, Oregon Fir or Cypress. You can't buy a better silo. Anchoring system with every silo. Our motto is Quality. Factories at Frederick, Md., and Roanoke, Va. *Write for free catalog.*
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Dept. X, Frederick, Md.

ECONOMY SILOS

Only $2 Down
One Year to Pay!

$24 Buys the New Butterfly Jr. No. 2. Lightrunning, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in five larger sizes up to No. 5 shown below.
30 Days' Free Trial Earns its own cost and more by what it saves in cream. Postal brings Free catalog, folder and "direct-from-factory" offer. Buy from the manufacturer and save money.
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PHILADELPHIA AND FOARD SILOS

Opening roofs for a full silo. Wood Tanks and Steel Towers. Write for special prices and delivery Now.
Ensilage Trucks. E. F. SCHLICHTER CO., 10 S. 18th St., Phila., Pa.

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Continuous Open Door Front. Permanent steel ladder attached.

Size 8 x 20	$78.95
" 10 x 24	113.20
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Other sizes in proportion.
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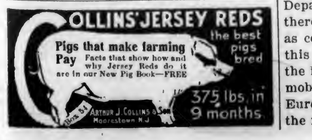
Box 13, HUDSON FALLS, N.Y.
SEND FOR OUR LARGE FREE CATALOG

COLLINS' JERSEY REDS the best pigs bred



Pigs that make farming Pay Facts that show how and why Jersey Reds do it are in our New Pig Book—FREE
375 lbs. in 9 months
ARTHUR J. COLLINS & SON, Moorestown, N.J.

ture: 200 pounds dried distillers' grain, 100 pounds bran, 100 pounds ground oats, 125 pounds gluten, 100 pounds cotton seed meal, 80 pounds oil meal, 15 pounds table salt, 10 pounds charcoal.

On the third day after freshening she was given 16 pounds of grain until the sixth day, when two pounds were added, which was systematically increased to 31 pounds. Two pounds of cotton seed meal was also provided and, with the following, made up the balance of the ration: 40 pounds ensilage, 100 pounds roots, 32 pounds beet pulp, 12 pounds hay.

Rock salt and plenty of water were accessible to her at all times.

The best previous seven-day butter record was 46.772 pounds, established by the pure-bred Holstein cow, Hester Aaltje Korndyke 133222, owned by M. J. Smiley, of Bellefourche, South Dakota.

Feeding Growing Stock

"In the feeding of growing young stock, silage is of much value because it is cooling, laxative and relaxing, and tends to keep the digestive machinery up to the highest efficiency in handling and utilizing the cheaper roughage of the farm," says L. W. Lighty, farm advisor of the Pennsylvania Department of Agriculture. "If the silage is wanting, we can in a measure replace it with dried beet pulp, but it is costly. If we pour water over the dried pulp and allow it to absorb as much as it will in twelve hours it is greatly relished by the stock and has a beneficial effect on the animal. If this feed is not to be had, it pays well to be liberal in the feeding of oil meal.

"When you have the corn and oats make them the basis of the grain ration because these grains contain all the elements of growth. A very good mixture is two parts of corn, one part of oats and one part of linseed meal, all by weight.

"Feed as much clover hay and corn fodder as the animals will readily clean up with relish. Roughage is by far the cheapest feed. You will find that good eaters will eat about two pounds of roughage for every hundred pounds of live weight after the young cattle are above a year old. They will eat more if not properly fed on grain, but will not do as well and often become stunted.

"As to quantity of grain, it is not easy to lay down a rule. The good judgment of the feeder must come into play in this work and if that is lacking he had better study law, medicine or theology.

"Be careful not to fatten or cloy them, but give them as much as possible to keep up maximum growth. Farmers lose millions of dollars growing an animal in three years, to a one and a half years' growth. In other words, great loss is sustained by keeping and feeding stunted animals. Feed enough grain daily to keep them growing rapidly if you want to make money. If this will not make you money, stunting animals will surely not. Better not have stock than stunted ones."

Mules in Pennsylvania

Twenty-six counties in Pennsylvania show that the value of the mule as a farm animal is being appreciated and there have been increases during the past year which on January 1 showed an increase of over one-half of one per cent. in comparison with the total in 1916.

Figures collected by the Pennsylvania Department of Agriculture show that there are now 46,250 mules in the State as compared with 46,000 a year ago and this increase has been accomplished in the face of the spreading use of the automobile, the increasing exports to the European war centers and the advent of the motor tractor on Pennsylvania farms.

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FIRST PRIZE ARTICLE

"THE MORTGAGE LIFTERS"

By W. W. SHAY

FIGURES are rather uninteresting, statistics are dry, and bookkeeping is a bore, therefore a very large percentage of farmers sidestep the whole shooting match, make a guess, and if at the end of the year his operations have been unsatisfactory he sets it down to "hard luck," makes another guess and tries again—in the meantime the old sow out in the broomsedge does her best to make both ends meet and keep the family together, with the result that when times are pressing she, or some of her family, are the first to "get it in the neck."

We are prone to do considerable "spouting" about "beef" type, but in a large percentage of cases it is the lowly hog which follows him that makes the steer's operations profitable instead of a loss.

Pretty reliable statistics have shown that only one-third of the milch cows of the great old U. S. A. pay a profit on their food, one-third break even, and the other third are an absolute loss—a drag on the pocketbooks of their owners. It is a well-known fact that a well bred hog has the ability to lay on more flesh from a given amount of food than any other animal, which means at a greater profit for the food eaten; also, he can do it more readily.

Let us turn for a moment to the government crop report for January. We find that the average price for pork for the United States December 15th, *farm values*, was $8.76 per hundred; beef cattle $6.56; sheep $6.77; veal calves $8.79, and lambs $8.72.

One veal calf is about all we can expect per year per cow—and it is customary to credit the dairy cow with $10 for a calf and say nothing about the whole milk he consumed while making himself worth that amount. It is not unusual for the old sow to produce a March litter that will cash in a ton of pork in November while she is weaning another litter to replace them; in numbers, as compared to the produce of the cow, the famous standard of "16 to 1."

We are apt to sit up all night to pamper the newborn lamb, while the old sow makes the best of things as she finds them out in the fence corner farrowing nine or ten pigs. Go up through Ohio, Iowa—in fact, anywhere in what is known as the "hog belt" and what do you find? Well, you will find that while Iowa is the greatest hog state in the Union, there, also, a larger percentage of the people own automobiles; this is no dream, it's fact—the automobile follows the hog, and keeps it going, and that, too, on high-priced land, high-priced feed and high-priced labor.

Now be it understood that we are not "knocking" the milch cow, the horse or the steer; they are all right in their place. We are simply making a plea for the old sow who has done more for her owner, great and small, than any of the others, and has never had a square deal. Cultivate her closer acquaintance—it will prove pleasant and very profitable.

Following is the way we handle them: Take a 250-pound March gilt, pure-bred, of course, breed in November to a pure-bred boar, keep her growing, run on rye and Crimson clover pasture, feed sparingly of corn, give plenty of slop of the cheapest suitable grains at hand; pay attention to balancing her ration, with the use of either skim milk, shorts, oil meal, soy bean meal or tankage. See that she has plenty of roughage; either pasture, clover or bean hay or bran, skim or buttermilk may also be regarded as roughage. Keep her free from lice, insist upon plenty of exercise. Three weeks before she is due to farrow give her a separate lot with an individual bunk, not too much bedding. Run a fender, which is nothing but a shelf, eight inches above the floor and about eight inches wide, all around the sides of the bunk. Keep up the exercise; if necessary, drive her gently a mile per day, but if you scatter her shelled corn, place the bunk at the farther side of the lot and in other ways plan things to that end she will voluntarily take the exercise—but see that she gets it.

A week before she is due to farrow see that she is not costive, cut down her feed and drop corn entirely; a handful of oil meal in her slop from now on is a very nice thing, being a trifle laxative. You should know the very day she is due to farrow and have clean, dry bedding in the bunk—not long straw, hay or corn stalks for the pigs to get tangled up in; shredded corn fodder is fine, being absorbent; cut straw is all right, and forest leaves do well but must be closely watched, as they quickly get wet or break up fine and become dusty.

If you really mean business, have the sow tame, a pet, so that she will be pleased to have you with her at this time—it's easy, she will meet you more than half way in the matter of friendliness. At farrowing time we are always on hand with a box with old sacks in the bottom, and one to spread over the top; if the weather is cold we have warm bricks under the sacks in the bottom As the pigs are farrowed we place them in this box, where, in a short time, they will have become dry and warm, the lusty chaps crawling over each other trying to nurse. When things are going nicely and we can get away all right we take the box with the pigs beyond hearing of the sow, and with a small pair of tin snips cut off all the eight sharp teeth even with the gums, mark them with a leather punch in a certain portion of one or both ears—a litter mark which signifies a certain number, usually being the sequence number of the litter farrowed since January. Then we return to the sow, and after talking to her quietly, secure any pigs that may have been farrowed since we left; place one of the marked pigs at her udder, and when she shows a disposition to nurse them, the rest of those marked, and take the others away and treat the same before they nurse. Frequently during warm weather we do not mark and cut the teeth until we have the entire litter, but when it is cold we do not like to postpone the first nursing too long.

Removing the teeth will prevent cutting and scratching each others faces, thus making places for infection; biting the sow, thus making her uneasy and liable to jump and injure a pig, or possibly, in the case of a nervous gilt, disown them entirely. Anyway, it is a five or ten minutes job that we think pays very well indeed, and it is part of the game.

When all the pigs have nursed, the afterbirth has been removed and the umbilical cords pulled off at a length of about two inches—pull both ways in doing this, and don't cut—we quietly leave the happy family with a feeling that we have done our part, and a confidence that the old sow will do hers—a confidence which is seldom abused. At next feeding time, if she shows up at the trough, we give her all the water she wants, and if she acts very hungry put in a little bran and a very little oil meal, not much, for here lies the greatest danger—feeding too much right before or after farrowing; and here is where the pasture comes in so nicely, for it is natural for her to pick a little grass near the pigs. In a week we have the sow back on nearly a full ration without corn. Watch the pigs and do not feed a good suckling sow too much; we firmly believe that too much feed at this time is the cause of 90 per cent.

(Continued on page 120)

Sufficient Pasture, Good Motherly Sows and Comfortable Quarters are Some of the Essentials for Success With Swine

The Practical Farmer

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EDITORS

THOS. H. WITTKORN W. F. MASSEY W. H. TOMHAVE
A. E. GRANTHAM CHARLES A. McCUE
F. V. L. TURNER J. H. REED
EDWARD T. WALKER, Managing Editor

SPECIAL REPRESENTATIVES

J. C. Billingslea, 119-125 W. Madison St., Chicago.
708 Kresge Bldg., Detroit, Mich.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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MARCH 15, 1917

Our Live Stock and Dairy Special

THAT live stock still holds the attention of successful farmers was clearly demonstrated by the interest taken in submitting articles for our annual Live Stock and Dairy number. The writers represented nearly every section of the Eastern United States, and showed that no farm is too small or too large to have a place for animals of some kind.

Practically every article submitted contained facts of interest and value. It is true that they dealt with different phases of live stock production and in some cases they were especially strong in treating the local situation.

Considerable time was spent in going over these articles and awarding the prizes. Since no special rules were outlined to the contestants it became necessary to award the prizes to the articles that seemed to be most evenly balanced. It may be that other judges would have made a different selection, but these is an old saying "that differences of opinion make any contest interesting." If an error has been made in placing the awards it was not done intentionally.

We were glad to see interest shown in the various phases of live stock production and the earnestness with which every paper was prepared. We were also interested to see the high percentage of papers dealing with some phase of the swine industry. In indicates that the hog is being appreciated more and more. This is not to be wondered at when hogs are selling on an Eastern market at $14.40 per hundred pounds. Dairying came in for its share of articles, but few treated sheep, beef cattle and horses.

Many pointers can be gained from the four prize articles. Every one is based upon experience, which should be of value to the readers of The Practical Farmer. A number of articles that were not included in the first four have been retained and will be used as space will permit in succeeding issues.

One Effect of War Conditions

RECENTLY an issue of the leading daily newspaper in Chester county, Pennsylvania, contained the announcements of thirteen public sales of personal property within nine days of each other, which are worthy of more than casual notice. Aside from the "other things too numerous to mention" these thirteen sales offered 240 "extra good dairy cows" and a lot of heifers which we didn't count. This is an average of nearly nineteen milking cows for each farm, so that these sales cannot be considered the failures of "back to the landers." The question naturally comes up, why should so many want to get out of business in one of the leading dairy counties of the state? Only two of the sales are by "executors," two owners state they are going to quit farming, four say they have sold their farms and five give no reason at all.

We, of course, cannot attempt to explain these circumstances, but venture that the labor question has a lot to do with it. There is a little single track railroad following the winding course of a stream emptying into the Delaware river, which taps Chester county and which has been used for hauling all kinds of freight to the tidewater. Until only a few months back one coach, along with some freight cars, up in the morning and back at night, handled all the passenger traffic of this little road. Now there are three passenger trains in each direction every day, hauling an almost unbelievable number of men for this territory, back and forth for work in the munitions plants, ship yards and steel foundries which have sprung up along the river.

As the pay is greater for making bullets than for making butter, the dairy industry must temporarily suffer. When these conditions pass, and they surely must within a reasonable time, the dairy cow will come back as the nucleus around which a permanent agriculture can be developed.

Annually Paid But Unaccounted For

ONCE again our annual opportunity for the payment of "bad road tax" has come. It arrives as regularly as the annual tax notices at the country store or covered bridge and reaches our pocketbooks through loss of time, breakage of wagons or harness and injured horses. Thousands of miles of our real business roads leading from home to station, store or school are at this season only traveled because of necessity, and with a great deal of effort. Each year, however, as more of us adopt the automobile and motor truck the sentiment for good roads greatly increases. Among the first agitators for modern improved roads were the city people who only cared for so-called boulevards between the centers of population so that they could see the country with as little inconvenience as possible. However, with the general adoption of gasoline as the motive power most of us are looking for good roads all the time and to all places. We do not expect that all roads will be bricked, concreted, paved, asphalted or any other of the new style ways all at once, but we do believe that all roads could be drained even if it was only by means of an open ditch. Road engineers tell us that drainage, more than any otlier one thing, is what most roads lack.

Recently it has been said that the man who wrote the famous line, "Let me live in a house by the side of the road," must certainly have been thinking of a good road. Neighborliness and cheerfulness are not fostered by bad roads, so who could blame a man for being a pessimist if he lives on a neglected road. Statistics tell us that school attendance is much affected by condition of roads, and surely the community standard is shown by their condition. A careless people often give themselves away to a traveler by a slovenly road.

Increasing Production by Increasing Fertilization

WARS and rumors of wars bring problems which have never presented themselves before. Labor, not only scarce, but demanding prohibitive wages, is not the least of the difficulties which now face the farmer. The various reported shortages of reserved crops and the prospects for continued good demands would indicate that increased production during 1917 would be profitable. Under existing conditions, however, it will be impossible in most cases to increase the acreage. Other methods must be sought and it appears that higher fertilization offers the best solution. Commercial fertilizers have, of course, increased in price, but there never was a time when they could be put to such profitable use, as crop values have increased even more.

For producing the most food value per acre no other farm crop will equal corn. On March 8th the Bureau of Crop Estimates at Washington figured that 30.6 per cent. of the 1916 crop was still in the farmers' hands on March 1st, as compared to 37.3 per cent. of the previous year's crop in their hands a year ago. It ought to be possible this year to far surpass the 1916 merchantable crop of 2,169,725,000 bushels. Early plowing will aid greatly to insure sufficient soil water and if followed by careful and thorough cultivation supplemented with plenty of home or commercial fertilizers results should prove encouraging.

The world's wheat crop for 1916, after taking in the harvests of the southern hemisphere, which have recently been completed, was only equal to 74.7 per cent. of the previous year's crop and 8.8 per cent. below the average. While it is too late now to increase our wheat area except for the spring crop, it is still possible to largely increase the yield by top dressing. Recommendations for this work have recently been given a great deal of publicity by the New Jersey Agricultural Experiment Station and appear in this issue on page 127.

Fruit to Sell and for the Cellar

DO not allow the articles which you may read from time to time on the subjects of blight, scab, rot, scale and fungous troubles to deter you in any way from setting out fruit trees either for market or home use. These are only signs of the times—that an apple is no longer "just an apple," but that it must be a "fancy" apple to appeal to the eye and palate of the consumer.

Modern met' ods and equipment will successfully combat nearly all orchard difficulties at the present time and no one should hesitate planting on this account. There are many reliable nurserymen who are doing their share to help the fruit grower. Nursery stock is the foundation of the whole industry and it is essential that the trees be true to name. Many nurserymen can be depended on for this point, but many were the disappointments in "boom" days when after years of careful attention the fruit did not correspond with tree labels. Nearly all states now have nursery inspection laws, so that it is an easy matter to buy trees which are free from dangerous pests or diseases. As no one ever grew fancy fruit from inferior trees, only those which are strong-rooted, robust and budded from selected bearing trees should be considered at any price.

Possibly the fruit specialist does grow better fruit than the general farmer, but we hate to think of country life becoming so "efficient" that we will have to travel two or three miles to a fruit specialist or a dealer to obtain the materials for our first yearly strawberry short cake, fresh apple sauce or peach dumpling. It is still possible, with only a little effort, to have a home horticultural department on the farm. Selected home varieties are generally better than the run of commercial ones, which sometimes must possess superficial qualities which do not add to their taste. The home orchard produces kinds which some city men never knew existed.

The old adage that "an apple a day keeps the doctor away" ought to be sufficient reason for an orchard on every farm. Other fruits are also acceptable, and who does not like to go down in the cellar in midwinter and see a good stock of spiced, canned, jellied and preserved fruits for use when conditions are such that nature is not offering them for the picking. By all odds, do not let us neglect the farm fruit supply.

APPROACH of spring weather is too often the signal to keep children, especially the older boys, home from school to help with the work. The bad effects of this practice may not be readily seen at the time, but they are nevertheless real. It is always well to call to mind that the value of all men who are physically fit from their necks down is about the same. From their necks up, however, the value of men varies greatly and is only limited by the man himself.

The abnormal conditions which exist this year will offer stronger inducements than ever to keep the children home, but do not allow the future to be lost sight of and the fact that your boy and girl ought to have a square deal. It is no longer true that farming is only a business for the backward scholars.

IF you want to do your part in abolishing capital punishment in Pennsylvania now is the time to write to your representatives in both houses at Harrisburg and tell them how you feel in this matter. They are now considering the Wells bill, which covers this subject, and needless to say an expression of public opinion will do good at this time.

HAS it come to the point where farmers are going to decide the European war? Men can fight as long as they have plenty to eat, but when supplies fall short results begin to dwindle. The part that the women are now playing in the agricultural life of the nations at war makes interesting reading, but does not appeal to the American farmer.

SECOND PRIZE ARTICLE

Swine Breeding

J. C. LAMBIRD

When an unexperienced person contemplates going into the swine business the first question for him to decide (after his equipment is ready) is what breed am I going to raise, or what breed is most suited for my surroundings?

The best way to decide this question is to attend several fairs where hogs are on exhibit, or visit successful hog breeders of the various breeds, and by talking with them and studying their stock you may decide upon your favorite breed. When once you have a start stay with it—don't be changing breeds too often; but remember there are good hogs in all breeds, and many inferior ones, too. Don't buy an animal just because it has a recorded pedigree, but buy the best individual you can afford. In order to know a good animal we will need to know some of the points that stand for quality in that particular breed. I will outline the main points for all breeds, as I see them. Good, strong, arched back with uniform width, wide between eyes and ears, ears set according to the breed, short nose, heavy bone, under line straight, stand up on toes, short, stout pasterns, well sprung ribs, good length and well rounded hams are all things to be considered. There are other points, but don't look for perfection in these, as it is seldom seen.

Don't mate two animals that are poor in the same places. For example, if your sows are poor in their backs, mate with a hog that is extra good in his back, and the offspring will be improved. Hog men differ as to the cost of a pig at birth; some think it is cheaper to keep only gilts for brood sows and raise only one litter a year and as soon as the pigs are weaned fatten the sows for market and keep their gilts in turn. The other custom is to keep the old brood sow as long as she proves profitable; this way two litters a year can be raised from the sows. As for myself I prefer this method; I like to have my pigs come in March and September. The March pigs are ready for the early pastures by warm weather and they can be marketed before winter, thus avoiding the winter drop in the market. The September ones get a good start before they go into winter quarters.

At breeding time both the sows and males should be in a thriving condition—not fat, but just starting to get fat. The male one year and over is to be preferred. To a great extent the future of the newcomers is determined before they are born. The sow should be fed a balanced ration and kept gaining a little, but avoid getting her too fat.

Plenty of exercise is needed. In winter you can make them exercise by placing their sleeping quarters some distance from the feed lot. As a rule, they will exercise enough in summer.

About a week before farrowing time each sow is put by herself in a farrowing pen. If the weather is cold a warm place will be needed. I use a lantern, hung above the sow, or a small stove, when there is danger of the pigs freezing. It is well to be around at farrowing time, and see if everything is going as it should. Make friends with the sows so you can handle their young at this time with ease.

I prefer the individual "A" farrowing house. I also have a railing around the walls about 6 inches high so the sow can't mash her young against the wall.

Don't feed the sow for twenty-four hours after farrowing, but give her plenty of water. Give her slops at first, though some corn is all right. Increase her food so you will have her on full feed in ten days. Now is the time you will get the cheapest gains on your pigs, so give her plenty. Exercise the pigs to prevent thumps, if they persist in lying in the bed. If given a chance the litter will eat at an early age. I like to have them eating so well by the time they are 8 or 10 weeks old that they don't know it is weaning time. I find that shorts with a little tankage is good. After they are weaned I try to feed them a balanced ration composed of corn and tankage, in a self-feeder, with limestone, rock phosphate, coal, charcoal, wood ashes and salt to make up the mineral matter.

Pasture is used both summer and winter. Any of the legumes are good, and rye or wheat sowed early makes fine winter pasture. As a rule, the hog that is fed so he will weigh 200 pounds or better at six months of age returns a greater profit than the one that has not been fed so well. It is well to remember that it costs something to run the machinery or an animal's body; above that is where we get the pay for our feed.

As a feeder and breeder of my favorite breed (big type Poland-Chinas) I can truthfully say I believe there is no animal that will respond to good treatment quicker, and return a greater profit for the investment than the well bred hog.

Illinois.

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So, to meet both conditions, we this year build a Mitchell and a Mitchell Junior. You don't need to pay for room or power not wanted.

Every Penny Counts

The Mitchell advantages lie in making every penny count. John W. Bate, the great efficiency expert, has spent years here to attain that.

He designed this whole 45-acre plant to build Mitchell cars economically. He equipped it with thousands of special machines. Every part is built here at the lowest factory cost. On this year's output his methods will save us at least $4,000,000.

There is no other factory like this building high-grade cars.

Hundreds of Extras

You see the result in hundreds of extras—all paid for by factory savings.

There are 31 features—like a power tire pump—which are practically unique to the Mitchell.

We have doubled our margins of safety. This year every vital part has 100 per cent overstrength.

Over 440 parts are built of toughened steel. Many parts are oversize. Many are built of costly Chrome-Vanadium.

In luxury and beauty the Mitchell excels any other car in its class. The finish coats are fixed by heat, to give a deep, enduring lustre. A rare-grade leather is employed. This year we have added 24 per cent to the cost of these items alone.

See What Men Miss

See what men miss who buy cars without these extra features. See the 31 attractions, most of which are found in Mitchells only. See what luxurious bodies we can give you at these prices, because of our own body plant.

Then consider the value of this double-strength. It means a lifetime car.

See what it means in the Bate cantilever springs. In two years of use, on thousands of cars, not one of these springs has broken.

Those are the reasons why men are choosing Mitchells in such an ever-increasing way. This year our output is increased 2½ times over. Men don't want to miss these extras.

If you don't know the nearest Mitchell dealer, ask us for his name.

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Mitchell—a roomy, 7-passenger Six, with 127-inch wheelbase. A high-speed, economical, 48-horsepower motor. Disappearing extra seats and 31 extra features included.
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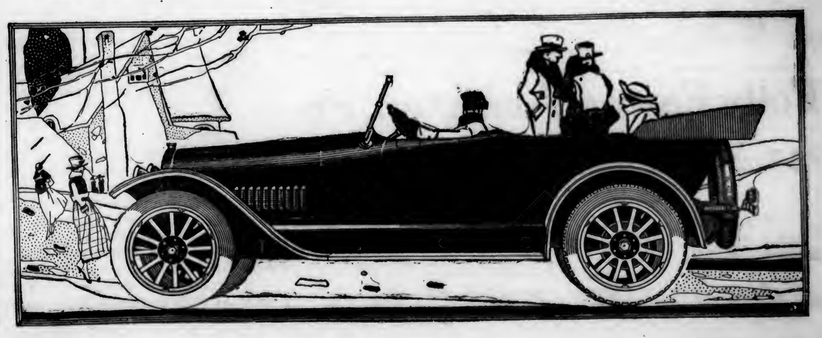
Also all styles of enclosed and convertible bodies. Also demountable tops.



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DE LAVAL

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CREAM SEPARATORS

YOU can *see the difference* between a NEW DE LAVAL and any other cream separator right away.

And five minutes spent in comparing the bowl construction, the size, material and finish of all the working parts, the manner of oiling, the tinware and the frames, will surely convince you of the superiority of De Laval construction and workmanship.

Then if you go a step farther and turn the cranks of the two machines side by side for fifteen minutes, running milk or water through the bowl, you will see still more difference.

Every New De Laval is now equipped with a Bell Speed-Indicator, the "Warning Signal" which insures proper speed and uniform cream.

Speed Indicators can be furnished for use on old style De Laval machines at a cost of $3.00 each.

And if you will run the two machines side by side in practical use, as any De Laval agent will be glad to have you do—the De Laval one day and the other machine the next—for a couple of weeks, you will see still greater difference in the work of the two machines.

There is a De Laval agent near you who will be glad to explain all the improvements and advantages of the NEW De Laval, and who will set and start a machine for you on your farm and let you *prove the difference* for yourself.

Why not see the nearest De Laval agent at once? If you do not know him, write to the nearest office for any desired information.

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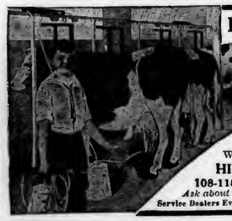

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Write for catalogue mentioning The Practical Farmer.

FOLLY FARMS, ABINGTON, PA.

THIRD PRIZE ARTICLE

Pure-Bred or Just Cows?

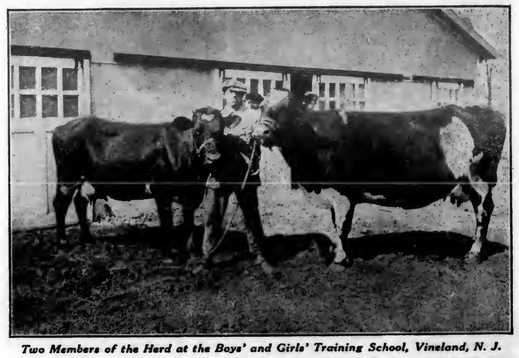
MRS. C. C. BOYD

Which? Every farmer decides this question either consciously or subconsciously. One man keeps the few old cows he has for the good they may or may not have done; as he has no record of their pail performance or their appetite he follows the line of least resistance and keeps them. Another man, after a careful study of conditions and records, decides to invest in a few pure-bred animals.

The first thing usually considered is first cost and here only the scrub cow has her inning. Of course there are many scrubs that are worth more than some pure-bred individuals, but as a whole the pure-breds are more valuable because of years of careful selection of blood lines. Another argument against pure-bred stock is, when you lose one you lose so much, but remember always the loss is the same in proportion to the value of your herd, be they pure-bred or just cows.

In October, 1913, we started a retail dairy in partnership, by buying a pure-bred, but not registered, Guernsey bull and 16 cows as variegated as Joseph's coat; but considering everything, an average herd. By keeping some records and carefully culling out the poorest and replacing them with better ones when we could get them, we have built up a herd of 34 that, according to the tester, are paying as well as any herd in the recently formed cow testing association. But the market value of these cows is very little above butchers' prices. They take the same care as pure-bred ones. The calves are not valuable, and the heifers we have raised are only grade Guernseys.

Within the last year we purchased an extra fine Guernsey male with an advanced registry record (Waddington Sunrise No. 16815) also two Guernsey heifers, one of them a greatgrand-daughter of Murne Cowan. The thought I want to suggest is this: If we had bought this pure-bred stock three years ago, investing the same amount as we did but getting a much smaller number of just cows and replacing them with pure-breds the increase in the value of the herd would have paid a bigger interest, even if there had been no increase in milk production. Our cows would be worth from $100 to $500 instead of $60 to $100; calves from $10 up instead of $3 to $5, and heifers in proportion. Also our herd would be more uniform and we would be prouder of them. Visitors are always shown Sunrise and the heifers first.



Two Members of the Herd at the Boys' and Girls' Training School, Vineland, N. J.

May I suggest that when you buy pure-bred stock you deal with a reliable man who fully guarantees his stock; also be sure you get their registry papers, as "pure-bred but not registered" does not attract the big buyers who have the cash. Also decide what you can afford to pay for your stock and then put that amount in half the number you think it ought to pay for, and buy animals in the best families of the chosen breed. Also be sure the stock you buy has a clean bill of health. It is expensive to buy extra stock and find you have something you didn't bargain for. It may cause endless work or possibly compel you to dispose of your entire herd on that account. So I say go "aisy"—but go.

Pennsylvania.

FOURTH PRIZE ARTICLE

Equipping the Dairy Farm

WALTER JACK

The Ford joke book tells of the man who lost his job because he dropped his monkey wrench, and as cars were going through the factory so fast, when he picked it up he was sixteen cars behind. The little roast shows up system in business, and system is necessary on the dairy farm. System and equipment are essential to profits. We are coming to equip our farms on a factory basis, and manage them with a cost system in mind.

A man starting in the dairy business should choose one breed, and that should be the breed kept by the larger number of people in the locality. Were I in a Guernsey locality I would by all means keep cattle of this breed, but as most herds are black and white in our neighborhood, that is the kind to which we will stick. Keep the best you can and keep better each year, and remember that a bull is an asset or a liability. A herd of 20 cows may be producing an average of 350 pounds of butter fat a year; one bull may reduce the average of the offspring to 300, while another may increase the average to 400 pounds. The difference in production for a year would amount to over $600 in favor of the better bull, and this would be interest at 5% on a sum exceeding $12,000. This shows up the business suicide the dairyman is committing, who tolerates an inferior bull as part of his dairy equipment, and it must be remembered that a good bull may be kept as cheaply as a poor one, and there is a chance of making part of the bull's keep from outside service, although there are some men in many communities who will say as a man whom I know: "Two dollars is too rich for my blood, when I kin get service for half a dollar."

I have visited a number of dairy farms, and the best dairymen are equipping their barns to meet the most critical inspection. The great factories where food products are prepared are models of cleanliness, and why should not the dairy barn be the same? With equipment it is much easier to keep a good barn clean, than without. It is easier to produce certified milk with proper equipment, than slop, which I have seen produced on some farms. I do not wish to mislead any one to think we have ideal equipment, for we have not, and we are only trying to better our condition.

A barn need not be a $10,000 structure to produce sanitary milk. I am a believer in the one-story dairy barn, and this should be attached to the larger storage barn. One of the large barn equipment houses, which supplies plans free to possible customers, advises the one-story barn for the herd, and the storage barn as the cheaper barn to build, compared with the larger barn with cow stables on the first floor. By all means we should keep our eyes open for short cuts in handling dairy products, the feed and the manure, and we can get valuable advice by writing to the barn equipment houses and putting our problems up to them; that is their business and we will sooner or later pay them back in buying sanitary equipment.

The question of facing cows in or out can be well argued both ways. In my opinion they should be faced in, and a litter carrier should be installed. The argument in facing cattle out is that one may drive between the rows of cows and clean daily. The litter carrier solves this problem, and the barn can be kept much neater than when it is necessary to drive in daily with sled or wagon. I believe in feeding at one operation rather than cleaning at one operation. With cows facing together it is more convenient to feed. However, there is no question that it is a little more convenient, when using the milking machine, to have the rows face out. The one-story barn is more easily and cheaply ventilated, and on this point I would advise the farmer to correspond with concerns making ventilating equipments, as their booklets go into detail regarding ventilating systems.

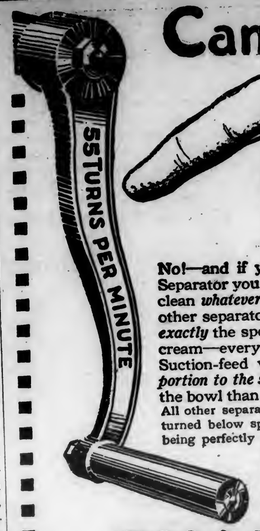
A barn should be made to conform to standards required by the board of health of the city to which one ships his milk, or the board of health of a nearby city, even though he is now selling his milk to a cheese factory. But, better yet, send to the Board of Health of New York City and get their score sheet and make all equipment and installations in harmony with their demands. The New York demands are much more critical than those of any other city, and other cities follow their pace. It pays to play safe. I understand the latest demands are for a steel stanchion with no wood about it. My attention has been called to another suggestion which would do away with the metal manger in front of the cow, since her breath would be reflected for her to breathe again.

For blue prints and specifications of any type of barn the architectural departments of dairy equipment houses, or the Dairy Division of the Department of Agriculture at Washington, or the dairy departments of the state agricultural colleges, will gladly give such help as possible. In Pennsylvania the Farm Advisory Board will help, I am sure. The cement manufacturing people have been advertising, and their booklets, which may be secured for the asking, will tell all about handling concrete. The silo concerns will supply information on growing and handling of silage, and concerns selling silo filling machinery supply books which cover the subject of silage in a very comprehensive way.

Take my word for it, a man cannot afford to be without a silo, and a friend who has two silos says he is going to put up the third, to be opened each year on July 1st. The question of the kind of silo may be easily solved by observing those which have given good service in the locality. Many of our silos are built having six sides, boarded up and down on inside and out on 2x6 frame well spiked going around the silo. The silo is lathed and plastered inside. However, green laths should be used, and the silo lathed and plastered just before filling, for best results. If allowed to dry out before filling it cracks. I was surprised when a man told me he had a silo which had given service for ten years, which was lined with roofing paper; and another man built a silo, lining it with seconds from the roofing paper mill, costing 90 cents a roll, and using large-headed nails. The lining of the silo was on rough boards, and for a 10x30 foot silo it cost him about $10 for roofing paper and nails.

I am convinced the co-operative silo filling outfit owned by eight or ten farmers is the proper way to handle silage. This secures for each farmer the most service possible for the least expenditure of money. Not far from us is a co-operative group which owns a blower and which hires a steam engine for 50 cents an hour. They have no waiting for a machine, and their silos are always filled before the community machine gets a good start in the surrounding neighborhood. There should be added to the community equipment the corn harvester with elevator attachment. I am satisfied the elevator attached to the harvester will save two men. The labor in such case may be distributed by having one man with the machine, one man in the field to help load, three men with wagons and three men at the barn. I am of the opinion, however, that in the near future a motor driven machine will be marketed which will cut the corn, cut it in proper length, elevate it to a wagon driven alongside, and the wagons will haul the silage to an elevator driven by an engine, and the silage will be unloaded and elevated as corn is handled in the corn belt. A farmer in northwestern Ohio has already built a machine of this sort, and he declares that he can handle silage for one-fourth the old way.

I am convinced the mechanical milker is one of the absolute requirements of a profitable dairy. We looked twice before we put in $450 for an installation, but at the end of six weeks we had no regrets. I agree with a neighbor who said that it was the first time in twenty-five years that he could feel safe to go away from home and not worry about getting back for milking. We have milked 24 cows the past summer with the machine. One man could be kept in the field with the team, while another could handle the milk easily alone. With a milking machine we can do without a hired man nicely, can get a full day's work out of the horses, and one man can milk the cows as quickly as three could before the machine was installed. I would say the better the cow the better the machine, and as Professor Larsen says, successful mechanical milking depends on, first, the man, then the cow,



Can you do it? Every day?

No!—and if you have a Sharples Suction-feed Separator you don't have to, for it skims equally clean *whatever* speed you turn. But with every other separator you must turn the crank at just *exactly* the speed stamped on it, or you will lose cream—every time! The wonderful Sharples Suction-feed varies the milk feed *in direct proportion to the separating force—never* more milk in the bowl than it can *perfectly* separate.

All other separators have a fixed milk feed. Thus when turned below speed much of the milk runs out without being perfectly separated, and some gets into the cream, making it thin and uneven. Thousands of actual tests have proven that 19 out of 20 persons *do* turn too slow most of the time, and that *everybody* turns too slow some of the time. Get a

SHARPLES SUCTION-FEED CREAM SEPARATOR

—the *only* separator that skims clean at widely varying speeds
—the *only* separator that delivers cream of unchanging thickness—all speeds
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—the *only* separator with just *one* piece in the bowl—no discs, easiest to clean
—the *only* separator with knee-low supply tank and a once-a-month oiling system

Sharples is positive insurance against carelessness and its consequent cream waste. We realized that it was far from sufficient that a separator *could* skim clean when properly handled. It was vitally necessary that it *would* skim clean—even when improperly handled. If any of the old-style fixed-feed separators would adopt a device for the purpose of notifying the operator when he is turning too slow, it would be an acknowledgement of the *vast superiority* of Sharples, which automatically *prevents* losses from irregular turning instead of simply announcing them. Write today for catalog to Dept. 40.

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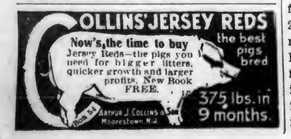

and last the machine. In any event buy single units; we are using double units, but with singles one can tell what each cow is doing, and one can milk with three single units as fast as with two double units. It is necessary to have good reliable power to handle the milker, and one should have no worry or bother with an unreliable engine. There should be plenty of power and a 2½ H. P. engine should drive a vacuum pump, pump water or run an electric light plant.

After the milk is produced it should be kept below 50 degrees, as bacteria multiply very slowly at this temperature. A good milk house with concrete tank, a commercial milk cooler and running water, is necessary. Where one does not have spring water it is necessary to have cold well water and this may be pumped to the watering tank and the cooling vat at the same time the engine is driving the milker.

Remember, too, one of the essential things in dairy farm equipment is the milk scales, and another the Babcock tester.—*Ohio.*

Breeds of Sheep

W. H. TOMHAVE

In the last issue we discussed the Shropshire breed of sheep, giving a general description of the breed, as well as the place where they originated. In this issue we will discuss briefly several breeds of the medium wool type, and in the next two issues discuss the fine wooled breeds and the coarse wooled breeds.

SOUTHDOWNS.

This breed originated in England and was imported into this country during the early part of the nineteenth century. It is very smooth bodied, compact in form, with a gray, brown or mouse colored face and feet. The fleece is quite short, of good quality and quite dense. Both males and females are hornless. They are quick maturing and well fleshed. Rams usually weigh from 150 to 200 pounds when matured, while ewes weigh from 125 to 150 pounds. This breed is well adapted to farm conditions, especially where mutton production is the prime object. The rams are exceptionally well suited for mating with fine wooled ewes for the production of cross-bred lambs. Sheep of this breed are well distributed over the United States and Canada. The American Southdown Record Association was formed in 1882 and 14 volumes of the flock book have been issued. The secretary of the association is located at Springfield, Illinois.

HAMPSHIRES.

The Hampshire originated in England and is believed to be the result of a cross of the Southdown upon the Wiltshire and Berkshire Knot sheep. The breed is hornless, with black face, ears and legs. The face is longer and not as fully covered with wool as the Shropshire, and the rams are inclined toward a Roman nose. Hampshires are larger than the Shropshires or Southdowns, rams weighing about 250 pounds when matured, while the ewes weigh from 185 to 200 pounds. The wool is of the same general character as the Shropshire but shorter and less dense and lower yielding. This breed is quite well adapted to average farm conditions, as they are rapid maturing and hardy. They were first introduced into America in 1855, but importations have been slow until recent years. Thirteen volumes of the flock book have been issued. The secretary of the record association is located at Nottawa, Michigan.

OXFORDS.

This breed originated in England and is the result of a cross of breeding Hampshire ewes to Cotswold rams. It is the largest of the medium wool breeds, being quite rangy. Rams weigh from 250 to 275 pounds and ewes 200 to 225 pounds when matured. They are not quite so dark in the face as the Hampshire and have a rather open fleece. The yield of wool is higher than in the Hampshire. The breed was first imported into America in 1846. Many importations have been made since 1880, and the breed is well distributed throughout the United States and Canada. The Oxford Down Record Association was organized in 1881 and about 13 volumes of the flock book have been issued. The secretary of the association is located at Hamilton, Ohio.

DORSET.

This breed of sheep also originated in England and has taken its name from the county in which it was developed. It is one of the oldest breeds found in the British Isles. Both males and females have horns and as a breed they are slightly upstanding. The face and legs are pure white and not covered with wool. The fleece is quite dense and fine, but ther are not heavy producers. In size they rank slightly below the Shropshire, rams weighing about 200 pounds, while ewes weigh about 150 to 160 pounds. As a breed the Dorset is very prolific and often produces triplets and seldom less than twins. They were first introduced into America about 1885 and have been gaining in prominence, especially where hothouse or early spring lambs are in demand. The Continental Dorset Club is the official organ of the breed, with offices at Mechanicsburg, O.

CHEVIOT.

These sheep came from Scotland, where they originated among the hills on the eastern coast. They have been bred pure for many years and are one of the oldest established breeds of the British Empire. Cheviots are of medium size, hornless, with white face and legs. Very attractive and stylish in appearance. The fleece is of medium length and density. Cheviots were first introduced into the United States in 1835. Other importations have been made during the past few years. The Cheviot is very hardy and will do well on rough land and under conditions where grazing is poor. The ewes are prolific and usually good mothers.

There are a number of other minor breeds that might be discussed as belonging to the medium wool type, but we shall not attempt it at this time. Inquiries concerning any of these minor breeds will be cheerfully answered.

"The Mortgage Lifters"

(Continued from page 115)

of all young pig losses—be careful! As you see that the pigs are husky and can take care of all the milk, begin to crowd the feed to the sow, and when all danger of overfeeding is safely past, feed; don't get her off her feed by overdoing the matter; use your judgment, but push those pigs through her, and as soon as they begin to eat, which will be at about four weeks, encourage them in every way. Give them a little trough where their mother cannot get to it, and feed them all they will clean up, and no more. If you are going to be nasty about it and allow milk to sour in the trough, better put it over where the sow can clean it up after she is through with her own; or keep dry feed in the trough at all times, where they can get to it, and water in hers. Now is the time we have pastures ready for the sow, and the pigs soon take hold of this also at an early age.

Rape, Crimson clover and rye for early spring; Medium Red or White clover and blue grass later. Oats and barley are fine; rape can be sown often —the Dwarf Essex is the variety to use. By all means have a nice crop of soy beans coming on for fall pasture; if something else gives out, say the clover, you can turn in on the soys any time, but we have never seen a hog eat green cowpeas. Crimson clover and rye again at the last working of the corn, and, if the mother was a mature sow, re-breed in May for a fall litter, and the cycle is complete, but as this was a gilt we would not re-breed for another litter until November again. And keep her growing right along—make her a great big, high-backed, big-boned money maker, then keep her as long as her eyesight and hearing are good and she is not clumsy and continues to farrow good pigs and enough of them.

Always have her in a healthy, gaining condition when bred; figure up what three such sows can do for you under such conditions, discount the result by 25 per cent., for safety, and decide just what car you want.

Castrate the males for porkers before weaning, and never, unless for a very good reason, wean before eight weeks old, and better ten if it will not interfere with re-breeding.

Keep those shoats coming along on a good pasture; by all means concentrate on the pasture—plan on it, but don't depend upon it alone; feed twice per day whatever concentrate is the cheapest for you, one that will balance with the pasture. With a half ration of ear corn you will be surprised at what tender clover or soy beans will cash in at per acre after deducting the cost of all other feeds.

Remember this: A certain amount of feed is necessary to keep an animal alive, and for this you receive no profit; it is what is known as the "maintenance ration," and with a hog it is figured at 1 per cent. of the live weight of the animal; the younger the pig the lighter this ration. It costs you two pounds of dry matter per day to keep a 200-pound hog alive—what are you waiting for? Push him along! Make him pay for that feed, eat enough more to break even on the additional feed, and then enough more to pay you. This "feed 'em along slow" is a dark delusion with the hog—it may pay with the steer—I "dunno," but it has been the worst handicap on the hog. It's like asking a bank to pay interest without making a deposit, and, believe me, the sow is a mighty safe banker; her dividends are sure and frequent, she is long suffering and persistent. Treat her right, she is your best friend.

North Carolina.

Exercise for Breeding Ewes

Proper exercise and shelter for breeding ewes is of equal importance with feeding. The ewes should be turned out to graze in pastures or over harvested fields or in exercise lots for a few hours every favorable day. Animals enclosed in small lots without sufficient exercise are weak at lambing time. They produce little milk and a high death rate occurs in their lambs. Shelter should furnish a dry bed and be free from drafts. Feed racks, fences and doors should be so arranged that ewes will not crowd each other. This precaution will prevent many still-born lambs.

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her own; or keep dry feed in the trough at all times, where they can get to it, and water in hers. Now is the time we have pastures ready for the sow, and the pigs soon take hold of this also at an early age.

Rape, Crimson clover and rye for early spring; Medium Red or White clover and blue grass later. Oats and barley are fine; rape can be sown often —the Dwarf Essex is the variety to use. By all means have a nice crop of soy beans coming on for fall pasture; if something else gives out, say the clover, you can turn in on the soys any time, but we have never seen a hog eat green cowpeas. Crimson clover and rye again at the last working of the corn, and, if the mother was a mature sow, re-breed in May for a fall litter, and the cycle is complete, but as this was a gilt we would not re-breed for another litter until November again. And keep her growing right along—make her a great big, high-backed, big-boned money maker, then keep her as long as her eyesight and hearing are good and she is not clumsy and continues to farrow good pigs and enough of them.

Always have her in a healthy, gaining condition when bred; figure up what three such sows can do for you under such conditions, discount the result by 25 per cent., for safety, and decide just what car you want.

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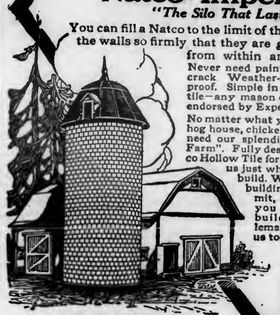

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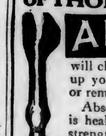

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THE GARDEN

Edited by W. F. MASSEY

All articles for, or questions relating to this department should be addressed "The Garden," The Practical Farmer, Philadelphia, Pa.

Growing Asparagus

A farm paper quotes Prof. J. B. Norton, of the Maryland Station, in an address at Farmers' Week at Cornell University, as advising one-year roots and saying: "I do not believe in starting the seed in its permanent place." Prof. Norton gives no reason for opposing the sowing of seed where it is to remain, does not say that he has tried it, and gives no reason why an undisturbed root should not grow stronger than one that has been transplanted.

I fully agree with him as to the one-year roots if one is going to transplant any, for the one-year roots will suffer less from the transplanting than the two-year ones. That is evident to any one. But I have tested for years the growing of asparagus direct from the seed, since it was first proposed by the late Peter Henderson, a better gardener than either Prof. Norton or myself. I have proved conclusively that asparagus from seed sown where it is to remain will give good cuttings a year sooner than the transplanted plants, and for years will grow stronger.

My last experiment was made seven or eight years ago when I bought my present home. I was uncertain at first where I would locate the asparagus, and sowed a long row across the rear end of the garden. These were grown thinly and made fine roots. The following spring they were lifted, leaving some of the roots undisturbed, and planting the lifted ones elsewhere. Those left in the rows grew off much stronger than the transplanted ones, for every one knows the needle-like shoots the transplanted roots make the first year. The undisturbed roots made shoots three times as stout as the transplanted ones. The transplanted roots have really had more manure than the others, but now, after seven years growth and manuring the plants from the roots that were not moved are far stronger and the stalks stouter than the others. This from sowing in the ordinary manner. But sown as I do when preparing a bed for seed I get greatly better results. I make trenches 15 inches deep, and put in 6 inches of old, fine, rotten manure. Cover this with soil and sow the seed thinly and cover. Then when the tops are 4 or 5 inches high I thin out to 2 feet in the row and work the soil to them as they grow, until level, and during the summer make two applications of nitrate of soda alongside the rows to push a rapid growth. In the fall the whole bed is thickly covered with manure, which is dug in in the spring. Then the same cultivation and fertilization is continued. Grown in this way I have often had shoots stout enough to cut in one year from sowing the seed. You cannot do that from transplanted roots, and they will be a year later in making a crop than the undisturbed roots. I have had the same results whenever making the test for the last thirty or more years. A root left undisturbed in the soil certainly has a better chance to grow than one torn out and transplanted, and that is what makes the difference.

As to varieties of asparagus there is little choice. Any sort will make fine stalks if abundantly fed every year, and the most select variety will make poor shoots in poor soil. Seed from the wild asparagus that grows all along high water mark on the shores of the Chesapeake and its tidal estuaries, will make as fine stalks in rich land as any, while on the beach its shoots are naturally slim, though largely snapped off, bunched and sold, and many people prefer these small, tender shoots to the cultivated crop. The proof of any method of cultivation is a practical trial.

The Best Garden Peas

A correspondent wishes me to say in The Practical Farmer what I consider the best varieties of garden peas. This is a hard question to answer, as the list of excellent varieties is so long. Of course every one knows that the round extra early peas are not of high quality, but we always sow some in order to have the earliest. These can be sown earlier than the peas of the wrinkled seed class, and I usually get them in in February, but failed this year. Among the higher quality peas Gradus is probably the earliest and is of high quality, but with me it has always been a shy bearer. Telephone is an excellent and popular variety, and so is Yorkshire Hero. But in my garden I grow mainly the kinds that need no brush or other support, and which can be planted closer. The extra early pea I use is the Nonpareil, a pea of the Alaska type. I sow a single row of these, for I want better peas for most of the space. Then I sow several rows of the Sutton Excelsior and Thomas Laxton, both quite dwarf peas, and I plant them in rows 20 inches apart so that they help support each other when full of peas. The only climbing pea I use is the old Champion of England, still unsurpassed in quality, and a very productive pea. These I plant along one line of my woven wire garden fence and they usually get to the top of it and wind up the spring season for peas here. One may make a more varied selection, but the four varieties I name fill the bill so well with me that I do not care to change.

The Dwarf peas are also good for a fall crop. To make this sow in rather deep furrows in mid-August, and work the soil to them as they grow, until level, thus getting the roots down in the more moist soil. Then spray with Bordeaux mixture to ward off the mildew and you can usually get a fair crop in October, and the early frosts will not hurt them.

Work for the Middle of March

Here and southward the middle of March should see the tomato plants transferred to the cold frames for their final hardening off. Northward and in sections where the plants cannot be set in the open ground before the middle of May, it will be early enough to set them in the frames in April.

In most of our territory March is early enough to start the eggplants and the main crop of peppers. Eggplants are so tender that I never try to get them started with the early tomatoes. We get better results from the increasing spring sunshine, and less danger of the plants damping off in the flats in which we sow them in the greenhouse. The Black Beauty eggplant is the earliest and best for the home garden, but they always seem more delicate and slow to start than the old New York Improved. I have always found it more difficult to

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solves the garden labor problem. Takes the place of many tools—stored in small space. Sows, covers, cultivates, weeds, ridges, etc., better than old-time tools. A woman, boy or girl can push it and do a day's hand-work in 60 minutes. 38 combinations, $3.25 to $15.00. Write for booklet.

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Because it wipes out the Pear Psylla, Bud Moth and Case-Bearer. Also stops the growth of Canker and Collar Rot

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STRAWBERRY PLANTS. $1.50 per thousand. Catalog Free. L. G. TINGLE, Box 66, Pittsville, Md.

get a good stand of the Black Beauty, and hence I always sow some of both sorts to make sure of plants. I never set an eggplant in the cold frame, but always grow them on in pots to a good size, as I never set them in the garden before the last of May or early June, and by that time I have stout plants with leaves as large as my hand and they are ready to grow off rapidly, being turned out of the pots without disturbing the roots.

In the open ground sow early beets and radishes. Both of these need the richest of soil for rapid growth, and rapid growth is necessary to make the best roots. In growing beets I use a high-grade commercial fertilizer on soil that was manured in the fall. Fresh manure applied in the spring is apt to make them grow forked. The fertilizer is put in furrows 15 inches apart and covered with a furrow from each side with the little hand garden plow. This ridge is raked nearly level and the seed drilled in. A few radish seeds of the White Tipped Scarlet Turnip sort go in with the beets. These germinate quickly and mark the rows, and they come out before the beets need all the room. In this way I get all the early radishes needed without making a special bed.

Lettuce seed, too, can be sown on a sunny border, for it will stand any frost likely to come now. For this planting I use Hanson and Wonderful or New York. These will head better when the weather gets warm than any of the butter lettuces like Big Boston, which run to seed with the first warm spell. Transplant the lettuce as soon as large enough, in beds 6 feet wide and set the plants about 10 inches apart.

Plant some Lucullus chard to come in after the spinach is over. The young leaves of the chard are hard to distinguish from real spinach when cooked. Some use the New Zealand spinach for greens in warm weather, but the chard is far better, and as the plants get large the outer leaves are pulled off like rhubarb and the leaves cooked for greens and the leaf stalks cooked like asparagus.

The manure that was spread last fall over the asparagus bed should now be dug in between the rows, taking care not to injure the roots any more than can be avoided. My asparagus being in rows 4 feet wide I can grow a row of early lettuce or radishes between the rows. But after cutting stops in summer the asparagus is fertilized well and the whole land kept cleanly cultivated to make strong crowns for another season.

In northern sections the parsnips and salsify are sown now and in April, but here and southward these are better sown in June, as in the longer season they may run to seed the first season and the roots spoiled.

Here and southward we often get in some corn in late March, planting the Norfolk Market corn, a great improvement on the old Adams Early. Sugar corn is not planted till April.

The winter mulch of manure is raked off the beds of tulips, hyacinths and narcissus as soon as the shoots begin to appear at the surface. This rough part of the manure goes back to the general compost heap to rot down better for the fall. When the red shoots on the pæonies show, give them some fine manure and cultivate the soil. The perennial phlox, too, will need similar treatment. The first planting of gladiolus corms can be made for the earliest flowers, and repeated plantings made until June to keep up a succession of bloom.

Plant onion sets and horseradish root cuttings. These can be set in holes made between the cabbages and will take the ground after the cabbages are cut. Sow seed of summer cabbages, such as Succession, etc., for midsummer use. Sow parsley seed in a separate bed for summer. Sow in 6-inch rows.

Lime for Vegetables

It is well known that such crops as beets, cabbage, celery, peppers, onions, lettuce and cantaloupes can not do their best on a sour soil. More than four-fifths of the tilled soil in New Jersey is more or less sour. The amount of lime required per acre to neutralize this sourness, or acidity, may vary from a few hundred pounds to several tons, depending upon the amount of acidity in the soil and the kind of lime used.

Until recently the lime requirement of a soil could not be determined in a simple way, but now a small machine is available with which the amount of lime required by a field may be accurately determined by testing less than a cupful of soil. Each farm demonstrator in New Jersey has one of these testers in his office. A grower in an organized county should not plant the above mentioned vegetables on soil which he believes may be sour until he has had his farm demonstrator test his soil. A brief circular on "Lime and its Use" has been published at the New Jersey Agricultural Experiment Station. It contains a discussion of the relative value of the different kinds of lime and their application. This circular may be obtained free from the experiment station or from any of the farm demonstrators.

Before the Garden is Plowed

Before plowing the garden patch this spring rake together and burn all the dead vines, grass, sticks and any other sort of rubbish, and you will save your plants from hosts of plant pests. Scientists at the Ohio Experiment Station have found that cutworms, and adult tarnished plant bugs, squash bugs, cucumber beetles, Colorado potato beetles, harlequin cabbage bugs, bean leaf beetles and other insects live during the winter in trash about the vegetable garden. Clean culture also tends to prevent many fungous diseases, as wilts and rusts, from spreading

Plan for Canning

When planning and planting the home garden it is well to keep in mind the economy of growing vegetables which lend themselves to canning. In this way the garden surplus may be put to economic use.

Spinach and Swiss chard may readily be canned. Vegetables of this group aid in the process of digestion and absorption and help to keep the blood and other secretions normal. Such vegetables are necessary in the diet in the winter as well as in the summer months. Spinach is valuable for the iron it contains. The iron in the red corpuscles of the blood carries oxygen to the tissues. Without the presence of oxygen, the food cannot be used by the tissues.

Asparagus is easily canned, also. Canned dandelions serve the same purpose as spinach and other leaf-green vegetables. Carrots and beets should be canned when they are young and tender, as this condition insures a better flavor and less fiber or woody matter and may be utilized for salads during the winter.

Peas, beans and corn are other vegetables which may be canned. They are most difficult to keep, but may be preserved successfully by the "cold pack" method. Circular 44, of the department of agricultural extension at the Pennsylvania State College, telling of canning methods, will be sent to those who ask for it.

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HORTICULTURE

Edited by C. A. McCUE

Relation of Apple Diseases and Insects to the Apple Grading Laws

In states that have apple grading laws, considerable trouble has resulted during the past season, by the presence of disease spots and insect injury on apples when they were inspected. In many cases the packer has asserted that the fruit was clean when packed and that he cannot be held for injuries that develop after packing. In most of these cases the inspectors have contended that the disease must have been present when the apples were packed. So many cases have arisen that the question of development of disease in the barrel becomes of vital importance in enforcing the grading laws. Can it be told by inspection of the fruit whether or not the disease was present at packing, or developed later in storage? At the recent annual meeting of the Western New York Horticultural Society, Professors Stewart and Parott, of the New York Experiment Station attempted to answer these questions. Prof. Stewart said: "Apple scab may develop in storage if the storage temperature is too high. This development may easily occur in common storage, but I can find no evidence to support the assertion that it will develop in chemical cold storages where the temperature is brought down and maintained at the proper point." In most cases the expert can quite easily tell if the scab infection occurred before the apples were picked. If cork spots are found under the scab spots and the skin of the apple is ruptured with a rough, ragged edge at the edge of the spot, it is pretty conclusive evidence that the scab was present when the apples were packed. Cork spots cannot be formed after the fruit stops growing, hence the presence of these spots is pretty conclusive evidence that the scab did not occur after the fruit was put in the barrels. Prof. Stewart went on to say: "In my judgment a good part of the development of scab comes between the time apples are barreled and the time that they are actually put in cold storage. Conditions are especially favorable for the development of this disease if the apples, after barreling, are left in the orchard or barns and packing houses during warm, moist weather." Conviction for fraudulent packing can be secured only when it can be definitely proven that the scab was present and visible at time of packing. Prof. Stewart appears to be pretty positive that the time of infection can be told and the working of the law greatly facilitated thereby.

In regard to sooty blotch the evidence is not so clear. However, it is not likely that blotch will develop if the fruit is kept at a proper temperature. With the soft rots the case is entirely different, as there is absolutely no way to tell if the rot occurred before or after packing. It is not likely, however, that any apple grower would deliberately put rotten apples in the barrel, so in the great majority of cases the inspectors must accept the word of the grower that there was no rot present when the apples were packed.

With regard to insect injuries occurring after storage, Prof. Parott said that there was but little chance of this occurring after packing if the fruit is held at proper storage temperatures. If codling moth pupæ cases or cocoons are found in the barrel it is pretty conclusive evidence that the fruit was wormy when packed.

As apple grading laws become more common, the question of development of disease and insect injuries after packing will become increasingly important and thus the evidence given by Prof. Stewart and Prof. Parott is particularly timely.

Experiments with Dust Sprays

One of the important features of the work of the Bureau of Zoology of the Pennsylvania Department of Agriculture during the coming summer will be experiments with dust sprays in place of liquid sprays for the control of fruit insects and diseases.

Zoologist J. G. Sanders says that preliminary experiments in several states indicate that the dust spray method of application is very much cheaper, not only from the standpoint of cost of material, but from the cost of labor. As high as forty acres of large apple trees may be treated with dust in a single day with one machine, while by the liquid spray method no machine can possibly spray over eight or ten acres in a similar time.

The experimental work as outlined by Professor Sanders is to take two years on account of the variable seasons which affect the work strongly. Tenders have been made to the Department of Agriculture of materials to use in the work and it is expected to test out the merits of various spraying machines. The experimental work will be conducted in two or three sections of the state.

Pruning Peach Trees

Peach trees should be pruned during the winter while dormant. If this work has not already been done it should be started as soon as possible. In pruning bearing peach trees the New Jersey Agricultural Experiment Station recommends to remove any limb in the center tending to develop into a main leader and shade that part of the tree. Remove dead, diseased or broken branches, also any very low-hanging limbs up to 3 feet from the ground, which will interfere with cultivation and hang in the dirt when loaded with fruit. Thin out all branches where too thick for proper development of the fruit. Cut back all main leaders to a good outside shoot, and thin outside laterals on the main branches. How much the main leaders should be cut back depends upon the amount of new growth made during the past season. If the trees have made a growth of 18 inches or more, one-half of this new growth should be removed. Cutting back the tips of branches tends to thicken the top of the tree and should be followed by some thinning out of lateral shoots. Proper pruning will result in better fruit and likewise reduce the cost of thinning.

Don't blame your failures all on the man who sold you your trees—some of them may be laid at your own door. Nursery stock is living matter and should not be treated or handled as so many sticks of cord-wood.

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Soils and Field Crops

Conducted by A. E. GRANTHAM

In this department will be answered questions relating to soils and their improvement, field crops and the use of lime. Questions should be addressed to the "Soils and Field Crops" department, care of The Practical Farmer, Philadelphia, Pa.

The Importance of the Right Variety of Corn

It is well known that there is a considerable difference in the yielding capacity of varieties of corn. This difference sometimes amounts to as much as ten, fifteen or even twenty bushels per acre. Not only is the difference in yield to be considered, but the quality as well. A good yield at husking time, so far as value goes, may prove very disappointing, as the number of unsound ears and shrinkage may be quite large. For the largest yields of corn a variety must be selected that will use the whole of the growing season. Early varieties of any crop are not likely to yield as well as those requiring more time for maturity. Of course, care must be taken to select a variety that will be sure to mature the average season, otherwise unfavorable weather might cause a loss of the crop. The fertility of the soil has much to do with the maturity of the crop. Often a variety does not mature thoroughly and the grower is inclined to explain the result as a lack of adaptability. Lack of available phosphoric acid and potash will nearly always retard the maturity of the crop even though the plants have made normal growth otherwise. The failure of a variety of corn to mature properly is often observed in some sections of the country where the same variety has been grown for a number of years, and growers often conclude that the variety requires too long a season. The fact is their soils are becoming so depleted in phosphoric acid that the crop fails to secure the amount necessary for prompt ripening. This was well illustrated in the experiences of the corn growers of the Middle West a few years ago. In that section they were not accustomed to use commercial fertilizers for corn, and with the keeping of less live stock there was not enough manure to keep up the land. They found that the corn was failing to mature properly, especially during an abnormal season. It was claimed by the growers that the varieties they were planting were too late for their climate. And so they were when the soil lacked the proper plant food. Hence, the fertility of the soil must be considered when varieties of corn are chosen. If the land is in medium to poor condition it is wiser to select a variety that does not require a full length of season in order to mature. There is a larger per cent. of soft, unsound corn in the long season varieties than with the medium maturing sorts, when grown on rather thin land. There are varieties which, although cut in yield by unfavorable soil or seasonal conditions, mature every ear regardless of its size. This is an important feature in that there is less waste due to shrinkage. In one sense the higher the state of fertility of the soil the longer the growing season. To get the maximum yields a reasonably late maturing variety must be used and on a soil that is fertile. It is often recommended by speakers on corn improvement that one should go through the field before the corn is fully mature and select those ears for seed that have begun to ripen first. In this way they claim that a strain will be secured that will ripen each year a little earlier. This is true, but in the end the result will be a lower yield due to the fact that the corn will not use the full season nor the plant food to the fullest extent. If one is desirous of growing a strain of corn that will give the maximum yield he will select those ears that represent the average maturity of the crop when grown on fertile soil. A newly introduced variety of corn may prove disappointing the first year, due to the fact that it is not fully acclimated. The grower should not discard a variety after one year's trial. It is important, however, to purchase seed corn from a locality in the same latitude and under similar conditions of soil and climate.

The greater part of the corn grown is from unknown varieties or a mixture of varieties. One of the better known varieties is Johnson Co. White, a large white variety adapted to a long season and a fertile soil. It does best south of the latitude of Philadelphia. Reid's Yellow Dent and Leaming are two varieties of yellow corn requiring a slightly shorter season and do very well on a soil of medium fertility. There are many other good varieties of corn on the market, but none should be purchased for seed before knowing something of the length of season required. It will pay to grow a well identified variety, giving an opportunity to sell a portion of the crop for seed if occasion arises. At the present seed corn is scarce and commands a high price.

The Growing of Canning Peas

Recently several inquiries have come to the writer concerning the methods of growing canning peas. This is one of the earliest field crops of the season, and preparations for culture must be planned at an early date. The soil for peas should be fairly fertile. If not, a fair application of stable manure made the previous fall, is desirable. It is necessary to plow the soil deeply for peas, at least 8 inches if conditions will permit. Some prefer to plow to a depth of 8 to 10 inches in the late fall and early winter and then lightly plow early in the spring. On light sandy soils a single plowing is generally sufficient. Most growers claim that the preceding crop should be a cultivated one. In order to get the best results the soil should be well supplied with organic matter in order to hold the moisture more readily. The organic matter should be incorporated with the soil with the previous crop. The land is thoroughly fitted by harrowing and the planting made as early as the soil will permit. In Delaware and Maryland the peas are often planted by the middle of March, especially on the light sandy types of soil. Farther north and on heavier soils

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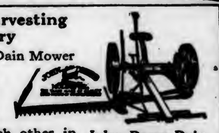

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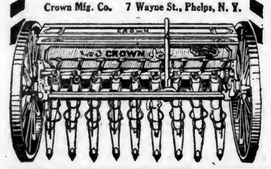

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planting is considerably later. Every effort should be made to get the peas in early, as it is a cool weather plant and the first growth does not require high temperature. The most common method of seeding is to drill in rows 24 to 30 inches apart. The quantity of seed per acre varies from two to three bushels per acre when drilled. The mistake of using too much seed is quite common. The peas are covered to a depth of 3 to 4 inches.

The fertilizer commonly recommended for canning peas is a 2-8-10 mixture. On account of the lack of potash, growers are using a 2-10 formula. As the ground is not actively warm during much of the time the peas occupy the ground it is advisable to use quickly available forms of fertilizers. Then rather liberal quantities are applied, as what is not used by the peas may be taken up by the following crop. It is best to distribute the fertilizers broadcast and harrow them in before planting. Or if the peas are drilled do not run the fertilizers through the delivery tubes with the seed.

The cultivation of the crop should begin just before the plants begin to break through the soil. A light harrowing at this time will loosen the surface, kill all the young weeds and assist the young plants to come up quickly. After the peas are well up they should be cultivated at intervals of a week or ten days, two or three times, or as long as the vines do not interfere with the cultivator.

There are a number of varieties used for canning purposes, viz., Alaska, French Canner, Gradus, American Wonder and Market Garden. It is the general practice in canning sections for the cannery operators to supply the seed of the variety they desire. In many cases inoculating cultures are furnished for the seed also.

The pea crop comes off early enough to allow the growing of a second crop. In Delaware and Maryland on light soils this crop may be corn, tomatoes, cowpeas or late potatoes. For this reason heavy fertilization may be practiced in growing peas, as the residue may be utilized by the following crop.

Treating Seed Oats for Smut

Oats are subject to considerable loss from the attacks of smut, a damage which is easily preventable by taking the proper precautions. The seed oats should be carefully fanned and screened before treatment. Spread the oats thinly over the floor and sprinkle with a solution of one pound, or pint, of formaldehyde to 50 gallons of water. Use one gallon of the solution to four bushels of oats. Next shovel the oats into compact heaps and cover with a tarpaulin, blankets or sacks. Allow to stand 24 hours then spread the oats out again to dry. The fumes kill the spores of the smut. It is necessary to keep the oats well covered so as to keep in the fumes. It is well to disinfect with the solution the drill or bags before seeding the oats. The treated oats not seeded may be used for feed, as the fumes soon evaporate.

Spread Manure on the Corn Fields This Spring

To prevent loss of plant food by fermentation and leaching in barnyards and stables, manure should be spread on the corn ground during the late winter and early spring months. Greater returns are obtained from manure spread evenly over a large area than from the same amount scattered heavily over a smaller tract.

As an average of 17 years tests at the Ohio Experiment Station at Wooster, eight tons of manure per acre applied to corn in a 3-year rotation of corn, wheat and clover has produced 25 bushels more corn than land receiving no treatment. Four tons of manure to the acre on both corn and wheat in a 5-year rotation of corn, oats, wheat, clover and timothy has produced an increase of 14.3 bushels of corn, as an average of 20 years. Eight tons of manure on the same crops in the same rotation has increased the corn yield only 23.8 bushels during this period. In other words, doubling the amount of manure has increased the corn yield only 66 per cent. In order to apply the manure evenly and over a larger area a manure spreader is recommended by the experiment station.

Lime Needed for Good Crops

R. R. HUDELSON.

Everybody knows that practically every farm crop must have lime for one or more of three purposes: (1) The soil must be kept sweet, (2) the plant food in the soil must be made available and lime helps in this, and (3) the lime itself is used by the plants as a food.

Some soils already contain so much lime that it is not worth while to add more, but the Missouri Agricultural Experiment Station has secured increased profits by liming on all the twenty different experiment fields located in twenty different counties on which it has conducted such tests during the last ten years. Estimating the crops at the average farm prices, limestone has already increased the average value of the crops $5.80 per ton of lime applied and part of the lime is still in the soil where it will continue to do good for several years more. In these tests the same crops were grown side by side on limed and unlimed plats every year to be sure that they had exactly the same chances so far as soil, weather and other factors were concerned and that the only difference was that one series of plats received lime and the others did not.

Whether lime is needed and how much should be applied, of course depends on how sour the soil is or how deficient it already is in lime. The experiment stations in various states are practically always glad to receive samples of soil, test them for lime, and advise as to treatment. After a sour soil has been sweetened with the proper amount, about one ton every six years thereafter should be applied.

Even limestone soils may need applications of lime after they have been farmed for a long time, especially if the region is one of abundant rainfall. Lime is more quickly dissolved from the soil than other rock materials and those who live in limestone countries know how full the well and spring waters are of this material and what large caves are dissolved out of even the solid limestone. So even those who are most fortunate in living in limestone regions need to watch the soil. After years of cultivation, test it occasionally with litmus or in some other way to see whether it is becoming acid. If clover and alfalfa no longer do as well as they once did and the soil seems sad, a half pint of it, made up of soil from several places in the field, should be sent to an experiment station for tests. Of 268 samples taken from different sections of Missouri and analyzed by the experiment station of that state, 62 per cent., or more than three out of every five were found to be sour.

In the Middle West ground limestone usually sells for a dollar a ton, or less, at the crusher, and being much cheaper than either lump lime or slacked lime it gives more economical results. If it is to be hauled far, a very finely ground

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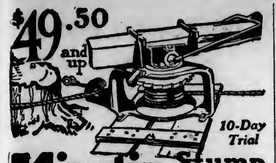

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Agricultural Extension Activities

The extension activities of the state colleges have had a wonderful growth during recent years. What the Agricultural School of Pennsylvania State College has accomplished in this line during 1916 is well shown by the following report recently issued:

Number of meetings and demonstrations	3,784
Total attendance at meetings and demonstrations	222,915
Total number of letters written	50,000
Total number of excursionists visiting college	8,000
Total number of farm visits	8,297
Total number of cow testing associations organized	8
Total number of cow testing associations reorganized	7
Total number of cows tested	7,696
Number of creameries assisted	20
Number of people affected by creamery work	2,536
Number of women reached by home economics activities	15,493
Number viewing educational fair exhibits	200,000
Number engaged in club work	6,000
Number of counties organized and in operation with a representative assigned	36
Number of counties to be started next year (Of the 67 counties in the state there are only a half dozen from which inquiry has not come regarding this county work. Even Philadelphia county is interested.	12 to 15
Number of people reached by county representatives	269,748
Number of circulars and bulletins mailed	1,250,000
Number of specially trained individuals giving full time to extension work	55
Total number on extension payroll	62
Total number of miles traveled by all extension workers	250,674
Total number of people reached	500,000

Queries Answered

Chalk Used for Lime.—C. S., New Jersey, writes: "Will you please publish in your paper whether chalk is good or injurious to land, as I am getting a mixture of wheat bran and chalk which they use in a factory for polishing buttons."

Chalk is chiefly carbonate of lime and should be beneficial in sweetening the soil. The bran will furnish some nitrogen. There is no possibility of this mixture being injurious to the soil.

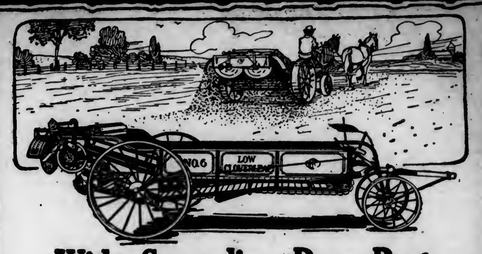
product, at least 90 per cent. pure, should be demanded. Sometimes a large farm that has outcrops of limestone rock can afford to put in a grinder of its own at a cost of $750, but as a 12 to 18 H. P. engine is also needed the expense is usually too great for any one farmer and can best be handled by a group of men.

Missouri.

Top Dressing Fall Grains

The acreage of winter wheat and rye is fixed for the coming year. Spring wheat, though sometimes grown in the East, yields not more than two-thirds as much as the fall-sown crop. The only practicable suggestion which the New Jersey Experiment Station can offer to produce more bushels is to stimulate growth from spring until harvest time.

Where winter wheat is not in a promising condition but is to be left for harvest, or where the land is not very productive, one may well risk an investment in a spring top dressing high in available nitrogen and phosphorus, such as a grass top dresser, or a mixture of half nitrate of soda and half acid phosphate, making an 8-8-0 mixture. This should be applied at the rate of about 200 to 250 pounds per acre, early in the spring, as soon as the wheat starts, and is especially recommended where not over 200 pounds of fertilizer were used in the fall and no manure applied during the winter. Where wheat is on rich and well fertilized land, as following potatoes, spring top dressing is not apt to prove profitable, and at normal prices of grain the practice cannot be recommended. While oats and rye are not commonly fertilized to any extent they will respond generously to good treatment. The needs of rye are similar to those of wheat and several hundred pounds of a corn fertilizer drilled in with the oats will give good returns at present prices.



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RUFF ROCK Cockerels — Hens — Pullets. Fine specimens, bred from Madison Square Garden—Boston winners. Sure to produce. Winners. Fine layers. Eggs for hatching. FIELD, Somers, Conn.

Buff, White Leghorns, S. C. R. I. Reds, Eggs 60c per 15; $1.50 per 30; $4.00 per 100. S. C. Black Minorcas, Mottled Anconas $1.50 per 15; $3.00 per 30; $8.00 per 100. Catalogue free. JOHN A. ROTH, Quakertown, Pa.

EGGS, 13, $1.00; 30, $2.00. Thoroughbred Rocks, Wyandottes Reds, Hamburgs, Leghorns, 19 varieties. Also Brahmas, Orpingtons, Houdans, Campines. 35th year. Catalogue. S. K. Moth, Coopersburg, Pa.

FOR SALE. Pairs, trios, pens, all varieties. Rocks, Reds Wyandottes, Leghorns, Orpingtons, Andalusians, Campines Hamburgs, turkeys, ducks and geese. Prices low. RALPH H. RARY, R. 6, Millersburg, O.

EGGS S. C. Brown, R. Red, Narragansett, M. Holland $3.75 per 12. B. P. Rocks, S. C. R. I. Red chicken eggs $1.25 per 15. All eggs prepaid by mail or express. Walter Bros., Powhatan Point, O.

CHEAP, STOCK AND EGGS Stock, $2.00, eggs, $1.00 per 15 up. R. C. Rods, R. C. Brown Leghorns, B P Rock, S. C. W. Leghorns, S. C. B. Minorcas Joseph Miller, Lickdale, Pa.

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White Leghorn Eggs and Chicks. World's greatest winter laying strains. Get our prices before you buy. Nelson Bros., Grove City, Pa.

30 BEST BREEDS POULTRY. Stock and eggs. Low price. Big new illustrated circular free. See it. John E. Benfwole, Harrisonburg, Va.

Baby Chicks White Rocks, White Wyandottes, R. I. Reds, W. Leghorns, $12 to $15 per 100. Circular free. J. W. CONSONS, Jewell, N. J.

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Black, White and Tan Shepherd pups. Spayed females at $5 to $7; males $10. Satisfaction guaranteed. Norton Kennels, S. Hammond, N. Y.

Silver Laced Wyandottes Exclusively. Send for circular. A. SNIDER, R. 1, CALDWELL, OHIO.

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Eggs, B. and W. Langshans, light and dark Brahmas, B. P. Rocks, Pekin duck, $1.25 per 15. Toulouse and Emden geese, 30c each, postpaid. M. H. Myers, Edom, Va.

Hatching Eggs. American-English. White Leghorns. Males 6½ to 7 lbs. Females 4½ to 5 lbs. Trap nested stock. H. F. BUCK, Dept. C, Tunkhannock, Pa.

White Leghorn Cockerels (Everlay) large, healthy birds, $3.00. Two Cycle Hatchers in good condition $5.50 each. EARL THOMPSON, Harriman, N. Y.

POULTRY

Edited by F. V. L. TURNER

All letters, inquiries and requests in reference to poultry, should be addressed to the Poultry Editor of The Practical Farmer, Philadelphia, Pa.

Practical Poultry Talks

Baby Chicks and a Good Ration

Everybody who is located where they can manage it, will hatch some chicks this spring—let us hope that there will be enough hatched to take the place of the old hens that only lay a few eggs in the spring and loaf all summer, pretending to raise a family and then molt all fall and a part of the winter.

With coal burning brooders that care for from 300 to 500 chicks more incubators can be handled—with the ration given herein more chicks can be reared to maturity; there is really no excuse why the flock next fall should not be thoroughly productive and highly profitable.

When the old hens have served their purpose from now until June, when all the chicks have been hatched that are needed and eggs are not required, it will pay to sell the hens that feed bills may be reduced and that the city boarding house keeper may regale her moneyed kings with chicken fricasse, a la Maryland or a pot-pie.

Just before the season of spring chicken these old hens add class and prestige to the city hostelry that serves "emince of capon" (hen—plain hen, any age, boiled in soda and vinegar twenty-four hours and pounded with a rail maul for eighty minutes) once a week until spring chicken time, and then the boarder longs for the green fields and pastures.

Pardon these few steps at right angles to the beaten path, dear reader, but when we left our happy home, down on the farm it was, too, we believed all chickens went to boarding houses; so we also went. Now we have chickens on our own little suburban lot but we never invited our friends around to eat an old hen—we sell these old ladies to the neighbors that own cats. We were never partial to cats and we don't care a great big lot for old hens.

It is our belief that the man or woman who can possess himself or herself in patience to the death or deaths of three or four dozen chicks each spring while the neighbor's cat licks his chops while perched on your fence, deserves an enthroned place in the hereafter where he may look upon endless worlds of cats' tails.

All mortality in chick life is not caused by cats; low vitality, improper brooding methods and wrong rations are three things that cause the loss of millions of chicks every year.

For proper brooding methods we are never at a loss; every brooder is supplied with ample directions for its proper management, and the man or woman able to read can always, if directions are followed, brood successfully. This is also true of incubation.

Low vitality need never be a serious menace; eggs which are from females of impaired vitality show their defection in hatchability, weak chicks, chicks that stick in the shell and in early deaths. Healthy, vigorous females and males give a fair promise of what will come from any particular hatch—the weaklings are destroyed by careful poultry raisers; the livable kind are the base of the future flock, the goodness of which solely depends on the base, and should be carefully reared to maturity that improvement in stamina may come about in each successive generation.

In the great melting pots throughout this country the egg laying competitions, the very acme of perfection in stamina has been brought about. With the 100 small flocks employed (5 birds to each flock) stamina is of the utmost importance; to make records these birds must possess ability; to exercise this ability each pen must live, each bird, in fact.

One year, the fourth, the mortality in one competition was 13 birds out of 500; not a bird, however, that made up this 13, dying of any contagious disease. Apoplexy, tumors and sunstroke caused all of the deaths, all unavoidable. Mortality in the fifth year was 100 per cent. greater, 26 birds dying out of the 500, all non-contagious cases. Both years described show the wonderful vigor possessed by these 200 flocks. That it is greatly in excess of the average flock is unquestioned, and in connection therewith it should be understood that these 500 birds are kept in confinement nearly the entire year, are required to eat dry mash and nearly all day (from daylight to about 3.30 P. M., average) and are therefore subject to liver trouble, none of which disease any of these birds, however, had.

Beginning with the healthy day-old chick, keeping it under the right heat, feeding it a growing, health preserving ration and keeping it everlastingly at the same speed of growth means the healthiest kind of stock if it began life under hereditarily correct conditions.

Rations are the mystics of poultrydom, for youngsters, growing fowl and layers, if we listen to the uninitiated; there are millions of chicken raisers in all parts of the world that claim individual attainments in baby chick feeding. Every experiment station in the country employs different chick rations—positively there is no *best* ration, but just as positively there are any number that are not even an approach to good. We are urged to follow the mother hen in feeding chicks—It's a splendid scheme but the hen is just as successful in Maine as she is in Texas, but oh, what a wide difference between the bugs, green food and seeds in the two states! Then the difference in climate, to say nothing of the length of season. So it is with the several hundred thousand differences found in the rations used throughout this and other countries. Methods are just as numerous.

There is no claim set up for the ration herein except that it is being used in many parts of the United States and Canada by a vast number of poultrymen.

Here is the dry ground portion of the ration which is placed before the birds for their first meal: Corn meal, 25 lbs.; wheat middlings, 10 lbs.; ground hulled oats, 10 lbs.; ground stale bread, or baker's waste, 5 lbs.; black pepper, 4½ ozs.; oyster shell meal, 5 ozs.; Epsom salts, 5 ozs.; bone meal, 10 ozs.; millet meal, 8 ozs.; rape seed meal, 9 ozs.; bicarbonate soda, 2 ozs.; sulphate iron, ½ oz.; sulphur, ¼ oz.; allspice, ⅛ oz. This ration contains several articles, but a chick's life is best preserved with the ration given so far as statistics prove.

For the grain part of the ration, whole grains cracked to what is known as "chick size" can be had ready prepared in several very good commercial mixtures. The mash is placed in suitable chick size hoppers and kept before the birds all the time—the grain is fed five times a day in litter for the first week, four times the second, three times the third and twice a day after that period.

A little finely ground beef scrap can be added (a teaspoonful to 50 chicks) after the seventh day, gradually increasing it to 5 per cent. until the end of the second month, when 8 per cent. can be used until maturity.

Green food from the tenth day will be sufficient.

Worth While Suggestions

There is a big field for cackle mufflers to prevent the news getting abroad that an egg has been laid. They are far too valuable to be spoken of out loud.

Put down a few crates of eggs in liquid glass this spring—March eggs are best; April eggs are better, and May eggs are good, even June eggs will do, but put them down—they will be mighty valuable next October and November.

If chickens were only optimists and would believe that the weather was never cold and couldn't affect their egg yields!

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Are your flocks paying you for the money you are spending? Are you getting big, sound birds at minimum cost? You are if you are using the

Correct Coal-Burning Hover

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S. C. White Leghorns Eggs for hatching, $6.00 per 100. CHESTERBROOK FARMS, Berwyn, Pa.

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Campines, Reds, White Leghorns, Runner and Buff Orpington ducks, heavy laying strain. Eggs. Chicks. Write A. R. TANGER, Cork Springs, Pa.

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90 Varieties. Poultry, pigeons, dogs, ferrets, guinea pigs, hares etc., folder free. Colored descriptive 60-page book—10c. Bergey's Pet Farm, Telford, Pa.

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Man to Wear Fine Suit, Act as Agent Big pay, easy work. Banner Tailoring Co., Dept. 502, Chicago

Wanted to hear from owner of farm or unimproved land for sale. O. O. MATTSON, 2918 Cedar Ave., Minneapolis, Minn.

Barron's Wyandotte Cockerels from imported stock, for sale at $2, $3 and $5 each; also a few trios at $8, $10 and $12 each; sires of these cockerels imported direct from Barron by us; dam of sires, 278 eggs, and dam of grandsire, 283 eggs; dams of these cockerels, 250 eggs and over. Also write for 1917 hatching egg list; now ready.
GRANT BULER AND SON TROOPER, PA.

BABY 40 Acres Range **CHICKS**
A limited number for April 1st delivery at $12.00 per 100, full count and safe delivery guaranteed. Bred from vigorous, heavy laying, parent stock with good heads, small combs, long body and low tails. Place your order at once and write us for last seasons winnings of our "Young Strain" of single comb White Leghorns. Dominecr Farm Middleburg, Pa.

Being Overcrowded Will sell fancy Buff Orpington ducks very cheap. Jacob Leatherman, Wadsworth, O.

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Our Barter Column

This column is for our Subscribers only—no Real Estate Agents, Dealers or Manufacturers. 2 cents per word; no advertisement less than 50 cents.

100 **Calling or Business** cards $1.00; $2.50 per 500; envelopes with return $1; $3 per 500, postpaid. R. A. LORANT, R. 1, Arnold, Pa.

Dahlias for sale. 25 varieties $1.00, or exchange for Candidum lilies and others. MRS. HOWARD HOLSINGER, Denton, Md.

A **newly new** Mead Cycle Co., Motor-Bike Bicycle with 3 speed coaster brake and Duroc Jersey hogs or Leghorn chickens. L. E. BENNETT, Darlington, Md.

Wanted. Experienced man on farm. Temperate habits. Good moral character. Near churches, store and car line. Write stating wages. H. E. SANDERS, R. R. 2, Norwalk, Ohio.

Chicks. Day old chicks. Headquarters for brown and white Leghorns; Rocks and Minorcas. General utility stock. Broilers 7c up. Write for further information to C. J. STRAWBRIDGE, Liverpool, Pa.

Selecting Layers.—H. E. Z., Pennsylvania, writes: "Will you please help us in working out a system for selecting layers from a flock of range reared pullets?"

If you are familiar with the anatomical requirements of layers, capacity is best known by the distance from end of keel to extreme end of pelvic bones and the distance apart of the pelvic bones in conjunction therewith, coupled also with the straightness and thickness of these bones. This is a complicated subject to the uninitiated and requires more space than can be given here. An anatomical system, generally accepted as a foundation for scientific research, promising more than has ever been known about breeding for egg production, has been worked out by Walter Hogan, the Californian who has bred Leghorns for fifty-three years.

Tumor.—J. M. G., Virginia, writes: "On opening a chicken to cook I found in the oviduct what must have been a tumor. What remedy is there for this disease?"

There is no remedy. The trouble is more or less rare. Because of the impossibility of detection from exterior appearances or symptoms no relief can be given birds afflicted with tumors. Death and post mortem only reveal the trouble.

To Harden Egg Shells.—Mrs. J. R. P., Virginia, writes: "What can I do or give to my chickens to harden the egg shells? I feed gravel, sand, beef meal, bran, oyster shell."

The ration is impossible. Every few issues we publish rations in these columns. Any of the rations published will give perfect eggs in goodly numbers. Corn meal, middlings and ground oats should be added to what you are now feeding, and whole grains should be a part of the daily meals. If you do not have a formula for a complete ration write us; we will gladly send you one.

To Increase Egg Yield.—Mrs. C. W., Pennsylvania, writes: "The most of my chickens are yearlings and 2-year-olds, with a few pullets. I cannot get many eggs; how can I increase my yield? Ration I feed I got from The Practical Farmer."

Probably the pullets are doing most of the laying. You cannot get winter eggs from yearlings and two-year-olds. Get rid of your hens, after you raise some young this spring, and keep nothing but pullets for fall and winter eggs, but be sure you hatch early enough and keep them going fast enough to lay in November.

Tells Why Chicks Die

E. J. Reefer, poultry expert, of 436 Reefer Bldg., Kansas City, Mo., is giving away free a new book which tells of a simple home solution that raises 98 per cent. of all chicks hatched and cures white diarrhea over night. All poultry raisers should write for this valuable free book.—Adv.

The "MARVEL" COLONY BROODER

Coal-burning, Self-regulating For Large or Small Flocks **Price $16.00**
Capacity Unlimited Broods 100 or 1000
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SATISFACTION GUARANTEED

If you want to Brood at Least Initial Cost with Lowest Operating Expense, Make THREE CHICKS where only ONE grew before, send for our Free Booklets describing the MARVEL and IDEAL, also the PERFECTION, price, $12.75. Remarkable value.

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Buy a brooder with a perfect grate—one that will clean all the dead ashes out without poking the fire from the top. The Hill Colony and Magic brooders have no equal for quality and efficiency. We guarantee them. Will cheerfully refund the money after 30 days trial if they do not do all we claim.

Send for Free Brooder Catalogue describing both the Hill Colony and Magic Brooders. It also shows plans how to build colony and laying houses together with other appliances.

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We want to tell you how to prevent chicks from dying in the shell just at hatching time, how to save them from White Diarrhea or Bowel Trouble; how to build the best Home Made Brooder in the world from an ordinary box or change your old one.

Above information absolutely free, for names of 5 to 8 of your friends that use Incubators. Send Names Today.

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Pullets lay earlier. More eggs in cold weather. Cockerels mature quicker. More chicks survive—if you use KEYSTONE FOODS. The proper food for every age—
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That book—"How to Succeed with Poultry" is the *guide to success*, as thousands of poultry raisers will testify. *It starts you right.* It tells about the Cyphers Incubators, Brooders, Hovers, Poultry Foods and supplies—as well as *giving the rules of the game.* You must have the right tools to work with. Start with the "Book of Facts"—"It's worth its weight in gold."

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RESULTS A CHICK FROM EVERY HATCHABLE EGG. STRONG, HEALTHY, ROBUST CHICKS THAT LIVE. MAKES POULTRY BUSINESS PAY—MATCHES NEAREST OF ALL THE NATURAL PROCESS OF THE SETTING HEN.

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Conditions easy to get biggest Prize—Free Book "Hatching Facts" tells all—Gives short cuts in Poultry Success — Write for it today. Jim Rohan, Pres.
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GREIDER'S FINE CATALOGUE of fine bred poultry for 1917; 67 breeds illustrated and described; information on poultry, how to make hens lay, grow chicks—all facts. Low price on stock and hatching eggs. Incubators and brooders, 25 years in business. This book only 10 cts. Send today.
B. H. GREIDER, Box 54, Rheems, Pa.

OUR EXPERIENCE POOL

All our readers are invited to contribute their experiences on the topics under discussion. $2.00 will be paid for the best, and $1.00 for the next best contribution, and 50c for each other article published. Contributions must be in our hands 15 days before date of issue.

TOPIC No. 1216, APRIL 1.—What has been your experience in tile draining land? How much has it cost you for each rod laid, and what have been the returns? Have you used a horse or power machine for digging the ditch? Have you ever made and laid concrete drains?

TOPIC No. 1217, APRIL 15.—Time is coming to turn the cows out to pasture. Are you troubled at first with garlic flavor in the milk and how do you overcome it? How do you cool and care for the milk before it is shipped? What kind of pails do you milk into, and why?

TOPIC No. 1218, MAY 1.—How are you fixed for labor this season? Do you find it better to hire by the month or by the day, and what do you pay? Have you been compelled to change your plans on account of insufficient help, and if so what change have you made? What farm equipment have, or will you add this year to overcome these difficulties?

Topic No. 1215.—Describe the type of fence you find the most satisfactory on your farm. How long does it last and what does it cost per rod erected?

J. U., Tunnel Hill, Ill.—During my farming experience, which covers a period of many years, I have used about every type of fence a man could think of. For the past fifteen years I have used woven wire and consider it the best kind of fence obtainable. My farm contains 220 acres and I have the place well fenced with woven wire. Most all my fences are 41 inches high with two strands of barbed wire at top and one at bottom. When I first began to use woven wire I made a mistake in buying a cheap grade, the wires were small and poorly galvanized and the fence did not last long. Since then I have bought the best grade of heavy wire, thoroughly and heavily galvanized, and although it costs more than the lighter grades, in the long run I have found it the cheapest and best. My present fences cost me on an average about 65 cents a rod erected. I have some woven wire fences that have been up nine years and they are still in good condition. One of the greatest factors in prolonging the life of a fence is to use good posts and set them properly, thus reducing the fence expense. My posts are all wooden ones and were obtained on my farm. I have had no experience with concrete or metal posts, but in my next fence building I think I shall use some concrete posts. All my posts were well seasoned before being set. The corner posts are about 10 inches in diameter and set 5 feet in the ground. The line posts are about 6 inches in diameter and set 18 feet apart and 3½ feet in the ground. In setting my last posts, numbering about 50, I filled concrete in around them instead of tamping in dirt and stones, and those posts are as solid in the ground as can be made. I will use concrete in this way in setting all my posts hereafter. The concrete not only makes them good and solid, but it keeps them from rotting in the ground. Also the wooden posts I use in the future I think I shall treat with creosote, which has proved to be of much benefit in preserving wood. Two years ago I painted with barn paint all the posts along the fences around the barns and lots. Paint is not only a good preserver, but it gives things a better appearance, even a fence post.

D. W. S., Grove City, Pa.—The fence problem is not small on our farm of 120 acres, with a public highway running through it one way and a branch railroad through it the other way. We have a number of different kinds of fence, but the most satisfactory is woven wire 30 inches high with two barbed wires stetched tight on the top, making the fence 4 feet 3 inches high. We use wooden posts every rod apart, treated with coal tar. Fence costs about 40 cents per rod, work and all. Part of our land along the railroad is somewhat low and soft, so we plant willows for posts, and after four to six years growth these are used for posts. Locust is used where tree posts are not desirable. The wire fence lasts from 15 to 20 years when kept tight and well braced. Partition fences can be reduced in cost by using two or four barbed wires, but are not suitable for young stock or sheep. The old-fashioned rail worm fence is not now built on account of the high price of rail timber, although we have a rail fence built of white oak and chestnut 50 years ago, but kept in good repair. It gives good satisfaction by stretching a barbed wire or two, with posts two rods apart. Barbed wire is somewhat dangerous for horses, but cattle seldom or never are hurt seriously. We have never had any experience with iron or galvanized posts. One important thing is to have the corner or end posts well anchored and wire well stretched.

B. F. B., Mount Joy, Pa.—The type of fence I find the most satisfactory is the post and rail fence. I make the posts 6 feet 9 inches long and put them in the ground about 2½ feet; the rails we make 12 feet long, so when they are in the fence it covers about 11 feet. We make it mostly of locust posts, as they last the longest in our county of Lancaster, or at least in our neighborhood the wood is not as solid as it used to be, so the posts do not last as long as formerly. Good locust posts last from 25 to 35 years, and sound rails 30 to 40 years and longer, but as the blight is at the chestnut they may not last that long. To buy such a fence would cost 35 cents each for posts, 21 cents apiece for rails, and 13 cents for putting them up, the total cost for about 11 feet being 60 cents. I have the posts and rails so do not think it costs me more than $10 or $15 a year for my farm of 71 acres. We make it as we have time and it needs repairs more or less some years. I had experience with chestnut posts. After the fence was up 8 years the staples got loose and the cattle got through at the crops on the other side; they can't do this with a rail fence. A wire fence takes less work to put up and does not cost near as much. As long as I have the rails and posts I will put up the rail fence, then I know I have a fence that will last for years.

A. B. K., Rodman, N. Y.—I consider woven wire the most satisfactory fence on a farm. I think it lasts longer than barbed wire, is neater looking, takes less time to repair and is very much pleasanter to handle, for, even when very careful, one is almost sure to get some scratches or cuts when putting up barbed wire. Then, too, horses and cattle do not get hurt on woven wire as they do so often on barbed wire. I have some that has been up six or seven years and it is almost as good as when put up. It is a good plan in the fall to go along and loosen the staples in places where you think the snow is liable to pile on to it too heavily, as that will sometimes break some strands otherwise. As one has to have at least four strands of barbed wire to make a decent fence, I am inclined to think that the first cost of the woven wire fence is no more than the barbed wire; but even if it should cost a little more at first, I think it is more economical in the long run.

There are 86 acres in our farm, and woven wire is easier to repair and move from one place to another than any other kind, in my opinion. You can hitch a horse to it and draw it from one place to another, or roll it up when necessary. When we came on the place (12 years ago) there were mostly rail fences and some barbed wire. I have bought some barbed wire, but now, when I have to put up a new fence, I put woven wire, so in time I will have all woven wire.

H. P. T., Ulster, Pa.—The upkeep of fences on our farm is quite a problem. Our farm is located on a pine ridge and contains about 160 acres and of this it is safe to say 100 acres are fenced with old pine stumps. In its day they must have been a grand fence, as we have specimens that are fully 12 feet high and cover nearly two rods of fence.

I have been a reader of The Practical Farmer a long time, and have followed its teachings to my advantage a good many times. A few years back the late Mr. T. B. Terry said a man with a team can do more work in a rectangular field than a square one of the same area. As several cross fences were getting badly rotted, I decided to make the fields longer by removing them. This was some job, as the old stump fence had all the stones thrown in it from the field. It was accomplished and is very satisfactory, and I have since removed others. If every farmer would study his fields he could no doubt do away with half his fences and have better fields to work in. We replace our worn-out fences with the woven wire. This makes a very good, neat fence, easily kept free from weeds. In buying woven wire it is well to see that the cross stays are fastened so that they cannot be crowded apart by stock reaching through. We use one of the well-known brands of fence that is electrically welded. In this locality wire fence using posts every 8 feet costs about 35 cents per rod. It appears to be well galvanized and so far looks as if it would outlast the second set of posts.

C. C. C., Jr., Penn Laird, Va.—Many years ago we purchased a wire fence machine and began weaving up wire fence on a farm of 230 acres, which was practically all fenced with rails when we purchased the machine. Our entire farm is now fenced with woven wire and is giving perfect satisfaction. Some is quite hilly and we find that a fence constructed with this machine is perfectly adapted to the lay of the land, something we have never been able to get in ready woven fencing. The deepest gulches and the highest hills can be crossed with strand wires and woven up without a sag or a crimp anywhere. This machine is very simple to operate. The fencing posts are first set and the strand wires stretched and all is ready for weaving.

We usually build our fences 5 feet high, containing 12 No. 10 strand wires, and place stays 12 inches apart. We use No. 12 wire for stays and find this combination a good, strong farm fence.

A fence like this requires about 2½ pounds of stay wires per rod. Figuring baled wire at $2.50 per hundred, which is about an average price, this fence would cost, including both strand and stay wires, about 35 or 40 cents per rod for wire. One man can weave about 40 rods per day. It makes a good, reliable fence at the actual cost of wire, with but little more labor required to weave it than is required for stretching woven wire fencing. Any type can be constructed, from a hog fence 2 feet high to a poultry fence 6 feet high.

Some of this fence has been up for 17 years and is apparently as good today as the day it was woven. We prefer the soft wire to the spring steel. We protect all our fences with barbed wire, and ground all wires at several places to protect stock from lightning.

R. M., Denmark, Ia.—The kind of fence I am putting up now where I do not care to fence against hogs, is four barb wires supported by Osage orange posts. These latter I have growing on my farm. It seems, in years past, the owner of the farm must have had the hedge fever, for wherever there was any excuse for a fence he planted hedge. I have spent considerable time and money cutting and grubbing these down. They have furnished me considerable revenue from the sale of posts, but I think they would be rather a losing proposition if the rent of the land from which they have drawn moisture and fertility from the adjoining field crops, was taken into consideration. Where the hedge has pastures adjoining on both sides, I do not think there is so much loss from this source, besides furnishing shade for the live stock. I do not like hedge fences that are kept untrimmed, as they are a regular nuisance, and I am replacing them as fast as I can with wire. Where I want to fence against hogs and cattle I use 32-inch woven wire with three barb wires above it. It pays to have as much of the farm hog-tight as possible, as much forage can be picked up by the pigs at odd times of the year.

As to how long the fence will last, it will stand till the galvanized wire rusts out, and I am not worrying about that. The posts—Osage orange—are practically indestructible. These posts check and loosen some of the staples, which must be looked after occasionally, but is considerable less trouble than trying to keep a hedge looking neat.

If expense does not matter, a woven fence 42 to 50 inches high, surmounted by a wire with barbs 4 inches apart and supported by cement, Osage orange, mulberry, red cedar or black locust posts is the ideal fence for all field purposes.

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The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

APRIL 1.—Tell us of some short cuts or easy ways and aids for doing the family sewing. To what extent do you find it economical to buy your and your children's clothes ready made?

APRIL 15.—What are you doing to make your children take a personal interest in the farm and farm life? Is there any organized effort in your community working along these lines? Have you planned any special features or amusements for the summer?

MAY 1.—We have had a number of readers suggest the subject of house cleaning as an "Exchange" topic for discussion. We presume they want to know how to overcome it or lighten its burdens. Tell us in not more than 250 words how you meet this annual or semi-annual problem.

Get your contribution in early If it does not reach us at least 15 days before the date of issue, it will be too late.

What do you find best for walls, a plaster tint, paper, oil paint or water paint?

H. C. A., Geneva, O.—We have a very large farm house and every spring there are always so many rooms that have to be done over, and as we always have some place to put all our spare money we try to do our own papering and painting, as a great many farm women do. We have a large kitchen, wainscoted part way up, which had been papered and it always smoked, so that last spring we concluded to use terra-cotta color water paint on it, so my daughter-in-law and myself went at it. It took longer to take the old paper off than it did to apply the water paint with a new whitewash brush. It gave the walls a nice clean look, much cleaner looking than paper. I have an idea if one would make whitewash and color it with dyes it would do as well and be much cheaper.

We papered our sitting room and dining room, which open into each other, with light tan oatmeal paper, and cream overhead, with a narrow gilt band at the top. The cost of this, as we did the work ourselves, was about $5.

Next spring we will have to paper our hall and will try to find a pretty tan paper to match the other rooms, with a little stripe in it, as we like to see rooms that open into each other have colors that look well together. Plain paper gives a room a nice apeparance, and pictures show off to a better advantage. We have one bed room in white with blue stripe that is pretty, and only cost 12 cents per roll. There is nothing that shows, for the money invested, like a little paper and paint, and nothing that gives as much satisfaction to the housekeeper and home maker.

Mrs. J. C. H., Fisherville, Va.—To make your house look attractive and up-to-date there is nothing better than wallpaper. Procure a wallpaper catalogue from some reliable mail order house, which will only cost a postal card. Select paper suitable for each room. Don't put dining room paper in a bed room, or pantry paper in the parlor, just because it happens to be pretty.

Use great care and judgment to select paper that will harmonize with the painting of the room. Paper is really very cheap, considering you do not have to repeat the process of buying every year. With care it will stay nice quite a number of years. For rooms that are in constant use select paper that will not easily show the dirt. Your catalogue will give you explicit directions for treating the walls before applying the paper, and exactly how to proceed in putting it on. We have papered every room in our house (excepting the kitchen) ourselves very successfully.

If a person does not think he or she is quite equal to the task of putting on ceiling paper, especially if the ceiling is very high, a cold water paint is next best thing, as it may be obtained in almost any color and is a little easier to apply overhead.

Cement mixed just as used for cement work of any kind is the best thing I have used for mending broken places in plastering. Be sure it is dry before applying paper, if a large place, as it is likely to discolor the paper. For my kitchen, which is ceiled, I always use paint. It generally needs thinning with linseed oil, probably a quart to a gallon of paint. After it is once painted it takes only one coat to clean it up nicely each spring.

B. R., Wirt, Ind.—I have never had any experience with any wall covering but paper, but I have received many compliments on our rooms which my husband and myself papered last spring.

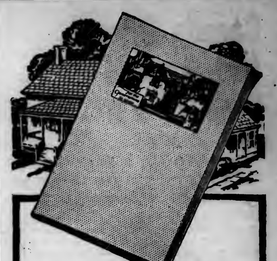
In decorating a new house a plaster tint is very pretty and desirable, but most old walls which cannot be tinted can be very successfully papered. Paper is easily applied by any one who will take pains and read carefully the directions published in most wallpaper catalogues. The old paper must be removed from the walls to be papered and all holes covered with strong cloth. I have found this an entirely satisfactory substitute for plastering holes in plastered walls and if carefully done will last as long as any part of the wall. Large figured wallpaper makes rooms seem smaller and is not considered in good taste at the present time. I think it makes a more harmonious looking house if the paper is all of one color or shades of one color as nearly as possible.

In my sitting room, which faces north, I used a tan paper with a small pink flower in it. It lightens the room up wonderfully. Tan or yellow is good for north rooms. Most any neutral color that harmonizes with the rest of the rooms may be used to paper a south room. I think it very easy to paper, and would not hesitate decorating a house in this manner. It is also inexpensive when you hang the paper yourself. Most any room can be made clean and attractive if one will take pains. Expensive paper does not always give best results. Many times inexpensive paper is as tasteful as the higher priced. Try to make wall covering, floor covering and furniture harmonize and you will have a tasteful room, be it elegant or humble.

Mrs. J. W., Cordova, Md.—For walls I prefer paper, and I have done most of our papering myself, until a few years back. I always paper to harmonize with rugs or other furniture, as your walls and floors are the background for pictures and other furnishings.

Many houses let in rain around windows, especially new houses which have only had one coat of paint. I have in mind a couple of new houses, one was finished in one of the brands of water color paints, the other with wallpaper, a green oatmeal paper on the kitchen; the other kitchen had light green water color. After these walls had dried the papered wall did not look bad at all; the other had great, unsightly stains, and one can not take a brush and apply more paint without going over the whole room, as it always shows where it has been retouched. On a painted wall, if there is any small piece of lime unslaked in the plaster it will chip off and leave white spots, therefore wallpaper is best. Never paper over whitewashed walls without scraping all the old whitewash off. I was told to go over the walls with glue water and the paper would stick. I would advise any one who intends papering, to send for samples of wallpaper, then choose their own paper and buy it. Oil paint on kitchen walls is all right, but I would prefer papering a wall to washing it. One can learn to paper if they have more ambition than cash.

Mrs. W. H. C., Cordova, Md.—I have found a good water paint a most satisfying, sanitary and economical covering for the walls of both farm and village homes. It is very durable, will not fade like paper, and one does not tire of it so quickly. In most farm homes the furniture and rugs or carpets have not been bought all at one time, with due regard to how they will harmonize with one another, but have been added to as necessity demanded and the fatness of our purses allowed; the result has not always been artistic or what we would like. A wall may give the harmonious touch that will tone down all the room,



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and give it an individuality that will surprise and delight you and your friends. For the high, well lighted living or dining room choose a moderately dark color for side walls, with a lighter shade for ceiling, letting the ceiling drop to picture molding. A stenciled border above the molding adds a pretty finish. If rooms are low, carrying the side color up to the ceiling will give them height. You can finish with molding or narrow paper border. For bed rooms light tones are best, with white ceilings.

I have good success in putting on the water paint, by using it quite thick and putting on quickly so it will be still wet when I make the laps. I always apply two coats, using a wide paint brush and brushing the second coat in a different direction from the first. Rooms that we have finished in this way over two years ago are bright as ever, and we are as well pleased with them now as when first finished.

Mrs. G. W., W. Danby, N. Y.—Marbled tile paper, self-applied, is always used on my kitchen. Always varnish, after applying, with clear varnish, as this paper can not be washed satisfactorily if this is not done. If my kitchen walls were smooth I would much prefer a tinted enamel paint, it cleans so easily. I have papered the ceiling myself, but have concluded that this work is too hard for a woman.

Smooth bed room walls are tinted with velvet kalsomine in the shade desired—blue or green for southern exposure and pink or cream for north rooms. A white-wash brush is used for applying the kalsomine. Where the walls are very rough paper must be used. I like the striped paper best for sleeping rooms. For low walls I use a narrow border, as it seems to give the appearance of height. The higher rooms look nicer if a wide cut-out border is used.

All old paper should always be taken off before renewing the wall covering, as disease germs love to multiply between the layers. I have known of diphtheria and other contagious diseases having been contracted from such source. I dampen the walls with a thin flour paste, wetting well, then let nearly dry, when the old paper can usually be removed in long strips. For many layers each one would have to be dampened. All uneven bunches of paper can be dug off with a putty or case knife.

For ceiling of dining room and kitchen I prefer a varnished, matched wood, as this can be cleaned even more easily than the metal ceilings, and if varnished after cleaning, once a year, is the best looking and most sanitary, to my way of thinking.

Mrs. M. L. W., Charleston, S. C.—Painted walls that may be washed either with soap and water or a disinfectant are really more sanitary and desirable than walls treated in any other way. Unlike paper, there is no danger of unsightly rents or peeling from the heat of the room, and while the original cost is much less, the renewing also is more easily accomplished. Paint should be spread so that it will dry flat without forming bubbles or looking streaked. By putting on one thin coat of paint and letting it dry thoroughly before applying another, the same amount of paint will be used as when one thick coat only is applied, and a much better result obtained.

The woodwork of a room, the size, lighting and purpose for which it is to be used should all be taken into consideration. Any color except the dark tones may go with white woodwork. A dark room should be treated in light or bright tints—yellow, sunny tan, pink and the like are wonderful brighteners and seem to bring in the sunlight. Living and dining rooms look best in a neutral tan or green which provides an unobtrusive background for the furnishings of the room into which the necessary color note may be introduced. A kitchen in robin blue (with agateware and oilcloth table covers in the same shade) was one woman's selection. Tan, brown or a neutral shade of gray is good here, too. Soft, restful tints for bed rooms are preferred by many, though where the bed room is a personal sitting room as well, individual choice is a factor to govern the decision. Small designed, daintily figured paper in any desired color may be chosen.

In a room where pictures are to be hung the walls should be perfectly plain and neutral in tint; figured paper is quite decorative enough of itself. The living room does well in a serviceable wall covering, not too dark, but just a "comfortable" shade. A color scheme too delicate, however beautiful, is not in good taste. The ceilings, as a rule, should be white, cream or light colored. A low room may be made to appear higher by using a paper with a striped or vertical effect; panels (which may be of narrow wooden molding) make a long wall appear shorter.

Red, while charming in small quantities, should never be thought of for an entire wall. Soft tones of green and gray are restful, yellow and pink add light, while blue, lavender and light green are the cold colors.

What Our Farm Women Ask and Answer

"Reading about mush in the last issue of The Practical Farmer, reminds me," says Miss J. M. G., Virginia, "that a delicious bread can be made with 1 pint of mush, ½ cup flour (more if needed, as flours differ) sifted with 1 teaspoonful of soda and 2 teaspoonfuls cream of tartar, 1 cup sour milk and one or more well beaten eggs lightly stirred in. Cook either as griddle cakes, or pour into very hot pan or skillet (spider) in which is a generous spoonful of lard or other fat. Bake in a quick oven. If a double boiler for making mush is not at hand, a very good substitute is a tin bucket with a close-fitting cover, placed on an inverted saucer in a kettle or iron pot of boiling water, with a cover over all."

Miss J. M. G., Va., says, in reply to Mrs. C. A. M., New Jersey, that broken china has been successfully mended in their family by fitting the parts carefully together, wrapping with twine or coarse thread to hold in place and boiling in sweet skimmilk to cover. Remove from milk while still hot and stand aside to thoroughly dry and harden for several days, before removing string and washing dish.

Mrs. D. V. A., Virginia, would like to hear of some one who has successfully hatched turkey and guinea eggs in an incubator.

"How can I make pieplant vinegar?" asks Mrs. A. O. H., New York.

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8024.—Ladies' waist. Cut in sizes 36 to 44 inches bust measure. This practical waist may be developed in linen or madras.

8221.—Girls' dress. Cut in sizes 8, 10, 12 and 14 years. Long or short sleeves may be used and the gathered skirt is cut in two pieces.

8135.—Misses' dress. Cut in sizes 14 to 20 years. The universal note of the season is easily recognized in this frock, which is cut in one piece.

8226.—Girls' dress. Cut in sizes 8, 10, 12 and 14 years. The waist and skirt are separate. The waist has trimming pockets at the sides.

7832.—Ladies' waist. Cut in sizes 36 to 44 inches bust measure. An irresistible model in plain and striped silk or your choice of fabrics and color.

7834.—Ladies' dress. Cut in sizes 36 to 44 inches bust measure. The dress has a plain blouse and a four-gored skirt.

8214.—Children's dress. Cut in sizes 4, 6, 8 and 10 years. The dress is made with inverted plaits, yoke, long or short sleeves and two styles of belts.

8186.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in three gores and has a slightly raised waist line.

8188.—Children's rompers. Cut in sizes 2, 4 and 6 years. The garment closes at the back, long or short sleeves may be used and the bloomer section is in one piece.

8204.—Ladies' dress. Cut in sizes 36 to 42 inches bust measure. The dress has a plain blouse, two-gored skirt and separate belt.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT THE PRACTICAL FARMER PHILADELPHIA, PA.

Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

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CHAPTER VIII.

EVE AND THE APPLE.—Continued.

Persis found Mrs. Hornblower more communicative than her spouse. As all roads lead to Rome, so, with Mrs. Hornblower, all topics of conversation led directly to the subject uppermost in her thoughts. The inevitable discussion of the prevailing modes led by a short path to Persis' full enlightenment.

"I want it fixed real tasty, Persis, for all it's not a new dress. I've had it going on four years, but I've been sparing of it and careful, so it's not like a dress you wear for getting supper and for trailing round in the yard after the dew falls. Robert's always been fond of this dress. I s'pose I'm kind of foolish to humor him so, but I'm always careful about consulting his tastes. Seems as if a wife had ought to be satisfied if she dresses in a way that pleases her husband."

"Sometimes I've thought," replied Persis, as she turned the pages of her latest fashion magazine, "that when it comes to women's clothes, men don't know what they do like. If a man goes with his wife to buy a hat, nine times out of ten, he'll pick out the worst-looking thing in the shop, and then he'll wonder why she's falling off in her looks. Now, Mis' Hornblower, what do you think of this pannier style? Taking out the extra fullness from the back and using it in folds, I could hide where it's getting worn on the seams."

"I s'pose we'd have a better choice of styles by waiting for next month's book," said Mrs. Hornblower, regarding the model Persis had indicated with an evident lack of favor. "But my plans are so unsettled that I want to hurry through my dressmaking. I dare say you've heard we're likely to leave Clematis 'most any time."

"I'd heard it hinted, but I didn't take much stock in it. Clematis would be sorry to lose you, and it would be pretty hard on you leaving Clematis."

Mrs. Hornblower smiled. "Oh, I haven't a thing against Clematis, Persis. Robert says that of course it doesn't give a man any kind of a chance to make money and I guess he's right. I believe in leaving such things for the men-folks to settle. These new-fangled women who are always setting up to know best and saying what they will do and what they won't do, can't have much of an opinion of the Bible. I'm sure it says as plain as the nose on your face 'wives obey your husbands,' and 'where thou goest I will go.'"

Persis scrutinized the back breadths of the lavender foulard. "But Ruth was talking to her mother-in-law," she objected, off her guard for the instant, since only the death of Mrs. Hornblower senior, had ended the hostilities between herself and her son's wife. Then regretting her tactless words, she hastened to say, "Don't you think that when a man gets to Mr. Hornblower's age, he does better in work he's used to than if he tries his hand at something new? It's easy enough transplanting a sapling, but an old tree's different."

"It all depends," replied Mrs. Hornblower coldly, piqued, as Persis had feared, by her reference to the delicate subject. But her desire to dazzle the plodding dressmaker with visions of her future prosperity, proved too much for her resentment. And soon, as they ripped and basted, Mrs. Hornblower was dilating on the unparalleled opportunity for wealth furnished by the Apple of Eden Investment Company. She quoted freely from its literature and outlined, w more or less detail, the care-free and opulent existence upon which the family of Hornblower would enter when the farm had been sold and the proceeds wisely invested.

"It's a disappointment to me that the whole thing isn't settled and done with by this time. But I always leave Robert to decide such matters, and Robert thought 'twas best to wait till Mr. Ware's visit. Ouch! My goodness gracious, Persis! You must take my arm for a pin-cushion."

This time Persis' contrition was not assumed.

"I'm awful sorry, Mis' Hornblower. The lining's so thin. I'll have the sleeve off in a shake before it gets spotted."

"That'll have to be bandaged," exclaimed Mrs. Hornblower, surveying her injured arm in the mirror with a not unnatural annoyance. "A little prick is to be expected now and then when you're dressmaking, but this is a regular jab. I don't know what ails you, Persis. Looks like your mind must have been running on Thomas Hardin."

Persis' unwonted humility was disarming, and by dinner time Mrs. Hornblower was sufficiently recovered to be patronizing.

"Of course this foulard is a sort of make-shift, you might say, Persis. It'll do me till I have a chance to get something real up-to-date and dressy in Paris."

Persis, laying down her work as the clock struck twelve, had no reply to make, and Robert Hornblower, whose punctuality at meals was notable, a characteristic shared by all henpecked husbands, entered the house at that moment, casting a quick glance at his wife's face as a sailor watches the sky for signs of a squall.

"We've spent the morning fixing up your favorite gown, so as it'll be pretty near as good as new," Persis informed him, as she accepted a well filled plate at his hands. Then as the farmer looked a little blank, she directed his attention to the renovated lavender foulard hanging over a chair.

Mr. Hornblower's expression was still vague. "Oh, you mean that pink—"

The women interrupted him with a derisive cry of "Pink!" But while Persis laughed, Mrs. Hornblower flashed upon her husband a look of ineffable scorn.

"As if I'd ever wore pink or ever would, a color for children."

"Them bright colors is all one to me," said the unhappy Mr. Hornblower, proceeding with fatal facility to make a bad matter worse. "They're all too kind of flashy. Now, my mother used to have a dress," he continued, meeting Persis' sympathetic gaze, "that suited me down to the ground. Satin, it was, or maybe 'twas silk or velvet. Anyhow, it looked rich. And it was sort of silvery, and then again, darker'n silver and sort of ripply and shiny—"

"Robert ain't very well posted on names," said Robert's wife with deadly calm. "But he knows what he likes, same as most men, and that lavender foulard has always been his special favorite," she repeated sternly, as she met her husband's wavering eye.

"Oh, the lavender foulard!" exclaimed Mr. Hornblower, with an unsuccessful attempt to give the impression that only at that moment had he discovered what they were talking about. "The lavender foulard, to be sure." He cut himself an enormous slice from the boiled beef and bowed his head over his plate, as if offering thanks for an excuse to retire gracefully from the conversation.

But this did not agree with Mrs. Hornblower's intentions, "Tired, ain't you, Robert?" Her solicitude was so marked as to suggest an ulterior motive.

"I guess this is about as busy a time of year as any," commented Persis.

And Mr. Hornblower, having now reached a point in his struggle with the boiled beef where he could make himself intelligible, began ponderously, "Oh, as far as that goes—"

"Robert realizes that he ain't as young as he was," said Mrs. Hornblower, taking the words from his mouth. "While he's not an old man yet, he feels that he's done his share of work. If there's a good time waiting for him, he means to get to it before he's so old it won't do him any good."

"Sometimes I think," observed Persis sententiously, "that enjoying one's self's a good deal like jam. You spread it on bread and butter, and you can eat a sight of it. But if you set down to a pot of jam and nothing else, it turns your stomach in no time."

The sudden illumination of Mr. Hornblower's heavy features indicated that he had grasped Persis' metaphor. He broke out eagerly. "Now, that's just what I was saying to my wife. If a man—"

"Robert looks at it this way," explained Mrs. Hornblower, deftly cutting in. "He says he couldn't enjoy himself just idling, but he don't look on travel and improving his mind in that light. Robert feels that enlarging your horizon,

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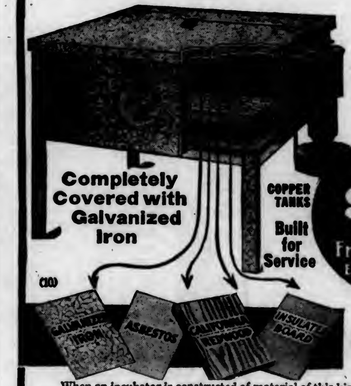

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and getting culture and polish is a part of anybody's duty. Robert feels real strongly on that subject," concluded Mrs. Hornblower, looking hard at her husband, as if defying him to deny it.

The worm made a visible effort to turn. "Whatever you may say about Clematis—" said Mr. Hornblower, apparently with the full intention of paying an impassioned tribute to his native town. But again the supports were cut from beneath his feet, and he was left dangling in midair.

"Robert thinks as well of Clematis as anybody," Mrs. Hornblower acknowledged generously. "He's got a real fondness for the town. But he says, the world's a big place, and it don't stand to reason that all of it that's worth seeing is right under our noses. Robert says that some folks who think they're so dreadful patriotic are nothing in the world but narrow."

For a moment Mr. Hornblower seemed tempted to take up the gauntlet with himself, challenging his own forcibly expressed convictions. And then as if realizing the uselessness of such an attempt, he sighed heavily and sought consolation in the gravy. And Mrs. Hornblower demonstrated the sweeping character of her victory by saying plaintively: "Of course a woman always feels breaking off old associations the way a man can't understand. Robert laughs at me. He says he b'lieves I fairly get attached to a mop I've used and hate to change to a new one. But a woman can't be a good wife, Persis, and think of herself. She's just got to set aside her own feelings and preferences, and look at what's best for her husband."

It was characteristic of Mrs. Hornblower's shrewdness that supper was always late when she had a dressmaker in the house. The fire refused to draw. A scarcity of eggs necessitated a change in her plans for supper, and the new menu invariably demanded more time than that originally decided upon. Persis, left to herself, and thoroughly understanding the purpose back of these various delays and postponements, smiled grimly, yet not without a certain reluctant admiration, and retaliated by sewing more and more slowly. And for the hundredth time that day, her thoughts returned to Mrs. Hornblower's careless reference to a prospective visit. Mr. Ware! Could she have meant Justin? His connection with the apple company made this seem almost certain, and yet it was inconceivable that Lena Hornblower should refer to his coming with such nonchalant certainty when she herself was in the dark. Persis' capable hands dropped to her lap. For the minute she was a girl again, parting from the boy who loved her, lifting her tear-wet face for the comfort of his kisses. Twenty years! Twenty long, hard years! And now Justin Ware was really coming home.

She put the question bluntly to Robert Hornblower as he drove her home after dark. "Your wife said something about a Mr. Ware's coming here before long. I used to go to school with somebody of that name, Justin Ware."

The depressed and silent Mr. Hornblower roused himself.

"It's the same one. The Wares never had nothing, but I guess this here Justin has cleaned up a lot of money. Don't follow that everybody could do the same in his place, though. Some folks have the luck, and some have got the pluck, and some have both." He sighed. "Of course you understand, Persis, that Lena wants me to do exactly as I think best. Only—only when a woman gets her heart set on a thing, a man feels like a brute to think of having his own way."

"Yes," Persis said gently, "I understand." And then with more optimism than she felt she added: "Maybe something will happen so she'll look at it different."

Thomas Hardin and Joel were awaiting her in the unsocial silence characteristic of their sex when no feminine incentive to conversational brilliancy is at hand. Thomas' eyes kindled as he said good evening. Joel, after two meals in which he had fended for himself, looked more than ever like an early Christian martyr. "There's a letter come for you," he said with marked coldness.

Persis whirled about, a wild foolish hope in her heart. "A letter? Where?"

"On the mantel, next the clock!" Joel's eyes followed his sister as she crossed the room with that quick, light step, so reminiscent of girlhood. She pounced upon the letter and even her brother's eyes, dimmed by life-long self-absorption, could see that her face fell.

"I didn't know you knew anybody in Cleveland."

"Cleveland." In some mysterious manner Persis' animation had returned. The confirmed meddler has one thing in her favor, that whatever the crisis of her own fortunes, there are always the affairs of other people to distract her thoughts. She dropped into a chair by the lamp and read the brief letter with breathless interest, too absorbed even to apologize:

"Miss Persis Dale,
"Clematis.

"Dear Madam—Yours of the 12th inst. received. I am at a loss to understand your very extraordinary inquiry; unless by some chance a letter intended for me has fallen into your hands. In that case I am enclosing stamps to have it forwarded by special delivery. I hardly need remind you that it is a serious offence in the eyes of the law to retain mail which is the property of another person. "Yours truly,
"W. Thompson.

"Holenden Hotel, Cleveland, Ohio."

Joel stared at his sister as she read down the page, her color rising, a curious, triumphant little smile playing about her lips. Thomas glowered at the floor. So this answer to the letter he himself had posted, was responsible for that look on her face.

"I guess I'll have to be going," he exclaimed, getting to his feet with the conviction that he had borne all that was possible for the time being.

Persis glanced up in surprise. "Already, Thomas? Well, give my love to Nellie when you see her." She crossed the room and placed the letter in her writing desk, that triumphant smile still transforming her face.

It might have brought comfort to Thomas' heart if he had seen her an hour or two later, for the smile had disappeared. She stood before the plush-framed photograph upon the mantel, a strange, wistful wonder on her face.

"Oh, Justin," she whispered as she looked. "Oh, Justin, Justin!" She put out her hands as if for all their capable strength they felt the need of a comforting touch. And then the amiable young face smiling back at her, blurred before her wet appealing eyes.

CHAPTER IX.

A DAY TO HERSELF.

Persis had resolved on a new gown.

The livelier iris which in spring changes on the burnished dove, reveals nature's universal tactics. On looking over her wardrobe after her day at the Hornblower farm, Persis had been appalled by its manifest shortcomings. The black mohair, held to the light, betrayed an unmistakable greenish tinge. The navy blue was long since out of style. As for the wine-colored henrietta, it had never been becoming. The material had been presented Persis by a customer who had unexpectedly gone into mourning, and she had made it up and worn it with much the emotion of an old-time penitent in his hair-cloth shirt. And yet in twenty-four hours the mohair had not become perceptibly greener nor was the blue more strikingly passee. It was Persis herself who had changed.

As she stood before the mirror, fitting her own lining, she defended her course as the wisest women will do, though when judge, jury and advocate are all one, the verdict is a foregone conclusion. She tightened the seam under her arm, used the scissors discreetly here and there, and continued to argue the point, though there was none who had a right to question or criticize.

"It's a bad policy for a dressmaker to go around shabby. It's like a doctor with an invalid wife and sickly children. And anyway, I haven't had anything new for over a year, unless I count that blue chambray wrapper. As little as I spend on clothes, I guess when I do want a new gown it's nobody's business."

The argument was plausible, convincing. Any listener who had been on the point of accusing Persis of extravagance, must have humbly acknowledged his mistake and begged her pardon. But Persis had a harder task than to convince an outsider that she needed an addition to her wardrobe. She was striving, and without success, to alter her own uneasy conviction that the prospective visit of Justin Ware was responsible for her novel and engrossing interest in her personal appearance.

Persis, studying her reflection in the mirror, directed the point of the scissors toward her throat as if deliberating suicide. "I wonder," she mused, "how 'twould look to have it turn away at the neck in a V. 'Tisn't as if I was sixty."

The scissors, obedient to the suggestion, snipped a cautious line directly beneath Persis' chin. The cambric was folded back to give the desired V-effect, and Persis' countenance assumed an expression of complacence altogether justifiable. Then at this most inopportune moment, Joel entered.

"Persis, have you seen my bottle of Rand's Remedy?" Joel had reached the stage, perhaps the most dangerous in his unceasing round, when he was ready to accept implicitly the claims made for every patent panacea. He dosed himself without mercy. He had a different pill for every hour, pills for promoting digestion, for regulating the heart action, for producing flesh. He swallowed weird powders, before and after meals. He took a wine-glass of a sticky unwholesome-looking fluid before retiring. Every periodical that came into the house he scanned for advertisements of proprietary remedies, and his manner sometimes suggested a complete willingness to contract asthma or sciatica in order to have an excuse for testing the cures so glowingly endorsed.

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The spectacle of his sister becomingly arrayed in the lining of the new gown, temporarily eclipsed the claims of Rand's remedy. Joel came to a jerky halt and stood open-mouthed.

"Dress goods must be getting expensive." Having convinced himself that his eyes had not deceived him, Joel relieved his feelings by heavy sarcasm. "It's a pity you can't afford cloth enough to cover you. I guess it's true that modesty's getting to be a lost are when a woman of your age will flaunt around—"

The goaded Persis spoke to the point. "Seems to me I remember not so very long back when you were taking a constitutional out on the front lawn without much more'n a bath towel between you and the public."

"What are you talking about?" Joel reddened angrily. "I'm a man, ain't I?"

"Well, we won't discuss that, seeing it's nothing to do with the case. But I will say that the very men who make the most fuss about women's dressing immodest, wouldn't mind riding through town on a band wagon with nothing on but a pair of tights. And I think they'd be in better business looking after the beams in their own eyes."

"That sort of thing is meant to allure." Joel pointed an accusing finger toward the V-neck. "It's 'stepping o'er the bounds of modesty,' as Shakespeare says, to entice your fellowmen."

"The jaw-bone of that ass that Samson killed a thousand Philistines with, returned Persis severely, "ain't to be compared for deadliness, it seems, with a woman's collar-bone. Looks to me as if 'twas high time to stop calling women the weaker sex when it takes so little to bring about a man's undoing. I've known plenty of foolish women in my time, but the most scatter-brained, silly girl I ever set my eyes on could see any number of men with their collars off and their trousers rolled up and not be any more allured than if she was looking at so many gate-posts. You men have certainly got to be a feeble sex, Joel. The wonder is you don't mind owning up to it."

"'Vanity of vanities',' taunted Joel from the doorway, "'all is vanity.'" He withdrew hastily, carrying with him the uneasy conviction that he had come off second-best in the encounter. And Persis, her cheeks hot with indignation, cut the V-neck a good eighth of an inch lower than she had intended.

In spite of this inauspicious beginning, she was presently singing over her work. There was something distinctly exhilarating in the idea of devoting a week to her personal needs, keeping her customers waiting, if necessary, though she hardly thought this probable, as the season was still slack. And the elation of her mood reached its climax when Annabel Sinclair sent Diantha down to say that she wished her black net made over, and was in a hurry. Persis had heard nothing from Annabel since Diantha had worn home her first long dress. And though she had reckoned on the probability that the opening of the fall season would bring her irate patron to terms, Persis experienced vast satisfaction in returning a nonchalant reply to the peremptory message.

"Can't do a thing just now, Diantha. Next week, Friday, if your mother hasn't got anybody else—"

"Oh, she won't get anybody else, Miss Persis. Nobody else would suit her."

Diantha looked taller and more mature than ever in a plain, loosely fitting blue serge. Persis appraised it with judicial eye. "Ready made, ain't it, Diantha?"

The girl blushed tempestuously, "Yes, father bought it for me in the city. Mother said— That other dress, you know—"

"Yes, I s'pose your mother thought we'd ought to have consulted her, instead of going ahead. Well, tell her I'm busy for the rest of this week, Diantha, and for next week, up till Friday."

If this were a dismissal, Diantha failed to accept it. She perched on the arm of the big chair and watched with fascinated eyes the heavy shears biting their way through a filmy fabric of a delicate gray shade. "How pretty!" Diantha murmured. Then with more animation. "Thad West says you're the best dressmaker anywhere around here. He says that you could make lots of money in the city."

"I'm quite set up by his good opinion—seeing he knows so much about it." That Persis' dry retort veiled sarcasm was far from Diantha's thought. She continued gullelessly.

"He's got such good taste, Thad has. Don't you think men have better taste than women, Miss Persis? All women care about is following the styles, and men think whether the way you do your hair is becoming or not. If a thing isn't pretty, they don't care a bit about its being stylish."

Persis glanced up from her cutting. She had noticed this phenomenon before, the impulse of the girl who feels a proprietary interest in some particular male, to indulge in sweeping generalities concerning the opposite sex. When Persis had schemed to bring about the dramatic encounter between Thad West and Diantha newly emerged from the chrysalis stage, she had but one end in view; to show the young man the essential absurdity of any sentimental acquaintance between himself and the mother of this blooming maid. With a vague uneasiness she realized the possibility that she had overshot the mark.

"I think Thad dresses beautifully himself," Diantha purred on. "When you're little you can't see but what men's clothes are all alike. Isn't that funny? Now Thad's neckties—"

There was a heavy step upon the porch, and Persis was spared further harrowing details. "Oh, it's the doctor," Diantha cried, with a sigh for her interrupted confidences. "Is anybody sick?"

"Nobody here," said Persis, and she echoed Diantha's sigh. The doctor's appearance suggested that she might be needed to act as nurse in some household too poor to pay for professional care. For a dozen years the old doctor had called on her freely for such gratuitous service, and his successor had promptly fallen into a similar practice. At this juncture Persis felt a most unchristian reluctance to act the part of ministering angel in any sick room. Nothing adds to a woman's apparent age so rapidly as working by day and caring for the sick at night. Persis had seen herself, on more than one occasion, take on ten years in a week of such double duty. And just now she wanted to appear youthful and pretty, not haggard and worn. She greeted the doctor less cordially than was her wont for the reason that in her heart she knew she must do whatever he asked.

(Continued next issue.)

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Don't Wear a Truss

BROOKS' APPLIANCE, the modern scientific invention, the wonderful new discovery that relieves rupture will be sent on trial. No obnoxious springs or pads. Has automatic Air Cushions. Binds and draws the broken parts together as you would a broken limb. No salves. No lies. Durable, cheap. Sent on trial to prove it. Protected by U. S. patents. Catalogue and measure blanks mailed free. Send name and address today.

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Raynster
—Reg. U. S. Pat. Off.—

Takes the Terror Out of Bad Weather

You cannot escape the bad weather, but you can protect yourself against it. Whether it rains, snows or blows, you will be snug and comfortable in a Raynster.

Look for this label on your coat

Raynster US NEW YORK BOSTON
Reg. U.S. Pat. Off.

Buying a Raynster means getting something dependable—a coat that will last and keep its shape. That's the great big reason why you should call for the Raynster by name.

Service Coats for Farmers, Drivers, Workers

Raynsters come in a number of different styles, fabrics and colors, heavy and light weight—rubber surface coats, well suited to the needs of farmers, drivers and those who require general work and service coats. Also double and single texture Raynsters. Raynster is the name of a new line, better and safer than any weather coats ever before on the market.

Our special process of vulcanizing literally bakes the rubber into the strong fabrics of the rubber surface coat.

You can depend upon it, your rubber surface Raynster will be thoroughly waterproof. Other Raynsters in appropriate styles for men's dressy wear and for boys, girls and women. Also auto coats. If your dealer does not handle Raynsters, write to address below and we will tell you where they can be obtained.

UNITED STATES RUBBER COMPANY US

United States Rubber Company
(Clothing Division) **New York**

Who Wants a Pony?

I am the Pony King **of America. I give Ponies away to Boys and Girls.**
I have given away 445 Shetland Ponies to 445 Boys and Girls—all over the United States.

Now I am going to Give Away Five more Ponies—beautiful, silky, long-haired playful Shetland Ponies—five of the finest Shetland Ponies I could find. I picked them out myself.

I am going to Give them Away to Boys and Girls and I want every family that takes this paper to stand an equal chance.

If you are a Boy or Girl send me your name right away. If you are the Father or Mother of a Boy or Girl, send in your Child's name. I will enter the name in my big Free-for-All Pony Club that starts right away.

No matter where you live, no matter how young, every child will stand the same good chance to get a Pony, with Buggy, Harness, Saddle, Bridle and Blanket. Be sure to send in your name right now.

PONIES GIVEN AWAY

THIS PICTURE CIRCULAR TELLS HOW TO GET ONE OF MY PONIES. IT IS SENT FREE

"Pert," a beautiful little pony, was given to Georgia Spencer, of Warren County, Pa. Georgia sent in her name, just like 444 other children who have received ponies from the Pony King. Georgia writes:
"One day as I was looking through a paper I saw pictures of ponies that The Pony King was giving away to boys and girls. I wanted to get a pony, but everyone said he would not send a real pony clear out here to Pennsylvania. But when I got a letter saying I had won "Pert," I was full of joy. We love him and he loves us, too. He is as gentle as a kitten and the prettiest pony I ever saw. He draws vegetables from the garden, apples from the orchard and potatoes from the field."

The Pony King has given away 12 ponies to boys and girls in Pennsylvania. Some of their names are Clarence Morgret, Cambria Co., Larue C. Wertman, Carbon Co., Luther Landis, Dauphin Co., Martha Wright, Greene Co., Romie Butz and Durell Moyer, Lehigh Co., Wm. Edwards, Lugerne Co., Gretchen Meyer, Pike Co., Robert Decker, Allegheny Co., and Georgia Spencer, Warren Co.

Pony Pictures Free

I want to send a **colored Pony Picture Circular free** to every Boy and Girl that sends in his or her name. It gives the names and shows the pictures of the five Ponies I am giving away, out on the farm where they live, with children riding them. It shows one of the ponies hitched to the beautiful Buggy I am going to give away, with six children taking a ride. It shows a picture of The Pony King out on the Pony Farm, talking to 15 children who live near the farm and who come over to ride the Ponies. It shows a picture of Harold Kutzler and "Rob Roy", the Pony I gave him. It shows a picture of Frank McKissak and "Wuzzy", the Pony I gave him. It also tells all about the five beautiful Shetland Ponies I am now going to give away and how to win one. Every boy and girl should get this Pony Picture Circular. I will send it free to every child who sends in his or her name.

Children Be sure to take this chance to get a Pony. Don't wait. Write your name and address in the corner below, cut it out and send it to me. I will then send you the colored Pony Picture Circular Free and you will have an equal chance to get one of the Real Live Ponies I am going to give away soon. You stand just the same chance as any other child and it doesn't cost you a cent. Get your pencil and write your name now.

Parents Please show this Free Offer to your child and send in the coupon. You will be interested in the Pony Circular I send and your child will enjoy it. He or she stands the same good chance as any other child to win one of the five Shetland Ponies I am giving away, no matter where you live. Remember, I am giving five Ponies at one time—not just one—so you see there are five chances to win one. Send in your child's name.

THE PONY KING, 604 Webb Bldg., St. Paul, Minn.

Here is one of the Ponies, with Buggy and Harness, that I give away. Wouldn't you like to own an outfit like this? Couldn't you have a lot of fun driving around the country? If you want a Pony for your very own, the first thing to do is to send me your name.

I Send Outfits Like This

I also Pay Freight Charges

WRITE YOUR NAME HERE AND SEND IT TO ME

THE PONY KING, 604 WEBB BLDG., St. Paul, Minn.

Please send me the **Free Pony Pictures** and enter my name in your **Pony Club** so I will have the same chance. I want one of the ponies you are giving away.

My name is_____

P. O._____ Age_____

State_____ R. F. D._____

State Experiment Sta

The Practical Farmer

PUBLISHED CONTINUOUSLY SINCE 1855

Volume 113
Number 7

PHILADELPHIA, APRIL 1, 1917

50 Cents Per Year
3 Years for $1.00

The Farm Boy, the Hired Man and the Engine

R. B. RUSHING

RECENTLY I heard a farmer make this remark: "I know nothing about a gas engine, but I bought one for my boy and it is a lot of fun to watch the boy and the engine do the work."

We all know the amount of work which an ambitious boy will accomplish in his play, but if he realizes it is real work his enthusiasm lags. A machine capable of running under its own power and moving other machines has a certain fascination for a boy, as he finds pleasure in doing work when he does not have to furnish the power. There are lots of jobs on the farm, some of them unusually hard ones, which the boy is required to do that an engine can do just as well and at a great deal less cost. For instance, sawing wood does not offer many inducements under the old buck saw methods. The ring of a buzz saw, however, has a sound which seems to call all the time for more wood and in a short time a large pile of cord-wood is ready for the ax.

Pumping water is another endless job and when it must be done by hand it seems as if the stock can never get enough to drink, and the amount used in the house is almost unbelievable. While I have never kept an exact cost of doing these jobs with the engine, I am fully satisfied that it costs less than half of what it does in doing them by hand.

As an aid to the housewife, the engine will also be found profitable in doing such jobs as running the washing machine, the cream separator, and the churn. In the barn when it is hooked to the feed grinder, root cutter, corn sheller, fanning mill, grindstone and other small machines, the work will be accomplished, almost without any effort, which otherwise would have to be hauled away to a mill or done by hand at a greatly increased cost.

One of the greatest possibilities of an engine on the farm is the generating of electricity. This not only means electric lights in the house, barn and wherever needed, but also the installation of such improvements and conveniences as electric fans, the electric iron, electric motor for the sewing machine and many other little appliances in the home, which, while they may not be necessities, are great conveniences. Many farmers have not been accustomed to these new contrivances and perhaps are of the opinion that they can do without them on account of their cost. In my opinion they are worth all they cost, in making the farm a better place to live.

A little forethought in the construction of a small suitable building for doing these various jobs and housing the machinery necessary will be well repaid. Very often a great many of them can be driven from one line shaft and if the engine is mounted on a home-made truck, or one supplied by the manufacturer, it can be moved from place to place and do any work which it is impossible to bring to the "power house." At the present time the hired man on the farm is a big problem. You cannot find a man every time you want one, and the number of places is greatly in excess of the desirable men. It is only natural, therefore, that the hired man will be attracted to the farm which is equipped with machinery for doing away with some of the drudgery. Thus the engine helps solve the labor problem not only by lessening the amount of labor required, but by making the farm work more attractive to the better class of laborers.

Many farmers are buying automobiles. They have been the great factor in overcoming distance in the country by bringing neighbors closer together and placing lecture halls and amusement places within the reach of the farmer. Previous experience with the small farm gasoline engine must be given credit for part of the success which the farmers have had with their automobiles. It has been the means of driving out the idea that Mr. Farmer cannot handle mechanical power with success or that he fails to realize the good uses to which it can be placed. There are few farmers who own automobiles who do not have an engine on the farm. There are engines of many sizes and types suitable for farm use, and the question should be carefully studied before making a final decision. Efficiency should be considered before the cost, and the size will depend on the amount of work required.

$1150 F. o. b. Racine

Mitchell Junior—a 40-h. p. Six
120-inch Wheelbase

Mitchell SIXES

$1460 F. o. b. Racine

7-Passenger—48 Horsepower
127-inch Wheelbase

John W. Bate's Extras

Which Make Mitchell Cars Distinct

Here are some facts which you should prove before you buy a fine car. Surely nothing else in Motordom is any more important.

John W. Bate has for 30 years been a famous efficiency expert. He has given 14 years to the Mitchell car.

This factory is his creation, designed for this single type. Our present cars were evolved by him, through hundreds of studied changes.

He spent one year in Europe, to combine in Mitchells all the best of European standards.

So the latest Mitchells, in every detail, typify the ultimate efficiency.

These Two Objects

Mr. Bate's first object was factory efficiency. To build a great car, in the finest way, at the lowest factory cost.

He spent millions of dollars to that end. This whole mammoth plant was built and equipped for the purpose. Nearly every part—including our bodies—is built under Bate methods here. And those methods save us, on this year's output, at least $4,000,000.

Next he applied efficiency to the car. He made over 700 improvements. He aimed to make the Mitchell the finest of fine cars. And to make it a lifetime car.

31 Extra Features

His factory savings pay for extras, which most like cars omit. There are 31 distinct features—all costly features—which are rarely found in cars. Things like a power tire pump, a dashboard engine primer, a ball-bearing steering gear, a light in the tonneau, a locked compartment, etc.

100% Over-Strength

In the past three years, part by part, he has doubled our margins of safety. Now all important parts are twice as strong as needed. That is proved by tests.

Over 440 parts are built of toughened steel. All safety parts are oversize. All major strains are met with Chrome-Vanadium.

Gears are tested for 50,000 pounds per tooth. Bate cantilever springs—used for two years—never yet have broken. Not a single one.

24% Added Luxury

Our new body plant this year gives another big saving. That enables us to add 24 per cent to the cost of finish, upholstery and trimming. This makes the Mitchell the luxury car of its class. And all our bodies are exclusive, built and designed by our experts.

Go See the Results

Go see these extras—extra features, extra beauty, extra strength. Under other methods, such things are impossible at Mitchell prices.

See also Mitchell Junior, which is nearly like the Mitchell, but a little smaller size. You will agree that no such values are elsewhere shown in fine cars.

Do this now. In May and June we are always oversold.

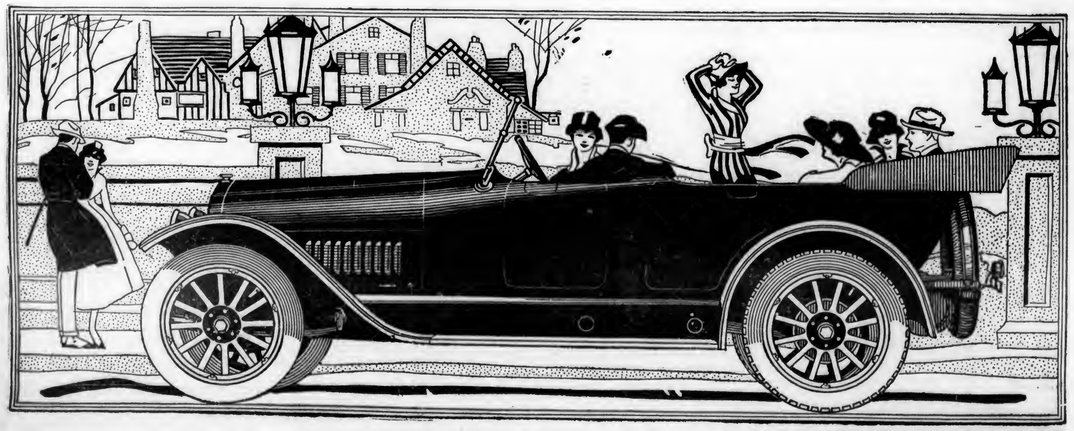
MITCHELL MOTORS COMPANY, Inc.
Racine, Wis., U. S. A.

TWO SIZES

Mitchell —a roomy, 7-passenger Six, with 127-inch wheelbase and a highly developed 48-horsepower motor.
Price $1460, f. o. b. Racine

Mitchell Junior —a 5-passenger Six on similar lines, with 120-inch wheelbase and a 40-horsepower motor—¼-inch smaller bore.
Price $1150, f. o. b. Racine

Also six styles of enclosed and convertible bodies. Also new Club Roadster.



A TWICE-A-MONTH JOURNAL of practical, every-day experience for, and by, men and women who take their living from the soil.

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The Serious Business of Potato Raising

THOS. H. WITTKORN

WHEN potatoes are selling in the Eastern retail markets at from three to four dollars a bushel it is only logical that they should receive a great deal of newspaper publicity and that the state and federal departments of agriculture should report an unusual demand for literature on their culture. With potatoes, as with other crops, there are always a certain number of growers who rush into the business when prices are high, but before they are fairly in prices are low again. Those who have had the courage to stay in and take the lean years with the fat have done so to their great advantage. They are fond of quoting the old rule—"cheap seed, dear potatoes; dear seed, cheap potatoes." Whether it will hold good or not this year in the face of so many unusual conditions remains to be seen.

On March 14th the U. S. Department of Agriculture reported that there had been 188,000 acres of early potatoes planted in six Southern states, as compared with 161,000 acres in 1916—an increase of about 17 per cent. This estimate is based upon reports to the truck crop specialist of the Bureau of Crop Estimates from Virginia, North Carolina, South Carolina, Florida, Alabama and Texas, the principal early potato sections of the South. These figures, however, do not necessarily mean that the resulting crop will be 17 per cent. greater than last year. It might be a great deal over that or it might be considerably under, all depending on weather and other conditions beyond the control of the grower.

A large part of the crop in the Middle Atlantic States, however, is yet to be planted, and conditions this year seem to indicate that any extra care and attention given to the crop will be time well spent. Pennsylvania State College has recently figured that 20 per cent. of the potato crop is lost through different diseases. Growers who are troubled with scab affecting the tubers know what an effect it has upon the selling value of a crop. The cause of this trouble can live in the soil from year to year, but appears to attack the potatoes worst when the soil is alkaline. If these organisms are in the soil cleaner potatoes will grow in a slightly acid soil than in a soil heavily limed. When the seed is infected the growth of scab can be prevented by treating the potatoes before planting. They should be soaked for two hours in a solution of one pint of formaldehyde to thirty gallons of water. The seed can be placed in bags and suspended in the solution, or if a large quantity is to be treated it can be done by using a number of barrels and pouring the solution from one to the other.

As to the advantages of different size seed and methods of cutting opinions differ. We have had best results by using medium sized potatoes and cutting to two eye pieces. If one is going to use a potato planter (and that is the only way to handle a large area) the important point is to have the pieces fairly uniform to obtain best results in planting.

In this connection it is interesting to note a method now being recommended to the home gardener by the U. S. Department of Agriculture whereby it is possible, they say, "to make available for table use over 675 pounds of potato flesh which, under ordinary conditions, would be planted per acre." This they show can be done by cutting out cone-shaped pieces of flesh each containing one eye and weighing from one-fifth to one-seventh of an ounce in weight. These sets are then to be allowed to cure until the cut surface has become dry, when they can be stored in a cool place or be started indoors. It appears to the writer that it would be still more interesting to know how many acres will be set out by this method and what the results will be.

Possibly no other crop will repay heavy fertilization as well as potatoes. While commercial fertilizers cost more than formerly, potatoes are selling considerably higher than usual and indications are that they won't drop suddenly to fifty cents a bushel where they have been known to be, so it will not pay to stint on fertilizer. It used to be thought that a high percentage of potash was necessary for the crop, but late experience has shown that it is not essential. Extensive experiments conducted in New Jersey with the idea of substituting ordinary salt for the potash salts have shown a decreased yield rather than increase. Southern growers are said to use from one-half to one ton per acre of a fertilizer containing 3 per cent. nitrogen and 8 per cent. phosphoric acid. Maine and New Jersey growers are also large users of commercial fertilizers, while New York and Pennsylvania farmers have the reputation of not using enough for maximum returns. The grower who intends to depend, over a period of years, on his potato crop, will do well to make at least a few experiments, as different soils require different fertilizers. Sandy soils, as a rule, require more nitrogen than clay soils. The great thing is to have plenty of plant food within reach of the roots and for this reason the fertilizer is mostly applied in the row. Nitrogen in the form of nitrate of soda should not be used until the plant has sufficient root system to make use of it at once. Turning under a good clover sod and properly fitting the ground help wonderfully on the fertilizer problem.

The Potato Planter Eliminates a Lot of Tired Backs

After planting, the work of a potato crop just begins. We like to go over the patch with a spike-tooth harrow at least twice before the plants appear and once after most of them have broken through. If the harrow is run the same way as the rows very few plants will be injured and the loss of those few is more than offset by the good done in destroying the small weeds just starting. At the first working with the two-horse cultivator, if the field is badly infested with weeds or if the potatoes are still in a small trench, we put on the big shovels next to the row and throw a generous amount of dirt over the plants. It is surprising how soon the young plants come to the surface again, but not so the smartweed which was buried at the same time. From this time on it pays to keep the cultivator moving. With no farm crop is it as true that "tillage is manure" as with potatoes. Care and judgment must be used in the work, however, and the growth of the plant must always be considered. We have had men who were doing root pruning and thinning the new potatoes until we got down on hands and knees and showed them the disastrous results they were having. Deep at first and shallower as the plant advances is the rule, but it won't always be followed by a new man, so it pays to watch how things are going. Some folks think they must always cultivate potatoes with a one-horse machine, but we have had excellent results with the same two-horse machine which we use for the corn. The object of cultivation is not only to keep the patch free from weeds, but to keep the moisture in the soil where it can be used by the plant for the manufacture of potatoes, which are largely water. In the case of continued drought the beneficial effects of cultivation are best seen.

A prominent potato grower of Lehigh Co., Pennsylvania, W. H. Hoffman, recently said that one of the surest ways to get larger yields is to cultivate better, at least twice as much as is generally done in his vicinity. He ought to know something about the matter, too, because he has been farming for thirty-two years and last year he sold over 8000 bushels of potatoes. On his 220-acre farm he follows a rotation of potatoes, wheat, grass and pasture, one-quarter of the farm being in these crops each year. Fifty-two acres of potatoes were grown last year and what he sold were hauled direct from the field. He figures that the extra weight which he gains in this way, and the saving in handling the crop, make up for the possible chance of higher prices. He applies his stable manure in the fall to land that is to be in potatoes the following year and about two weeks before planting potatoes he applies 666 pounds per acre of a high grade fertilizer, while he drills in, at time of planting, 333 pounds, making half a ton to the acre.

Potato plants won't just grow, as we fear many back-yard "high-cost-of-living reducers" will find out to their sorrow this year. The lowly potato bug is possibly the most common enemy of the potato plant and it was at one time predicted that he had sounded the death knell of the potato industry. Instead of that he is said to have become the cause for the general introduction of spraying for insects. Paris green applied in one of several ways was the first remedy

(Concluded on page 143)

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EDITORS

THOS. H. WITTKORN W. F. MASSEY W. H. TOMHAVE
A. E. GRANTHAM CHARLES A. McCUE
F. V. L. TURNER J. H. REED
EDWARD T. WALKER, Managing Editor

SPECIAL REPRESENTATIVES

J. C. Billingslea, 119-123 W. Madison St., Chicago.
708 Kresge Bldg., Detroit, Mich.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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APRIL 1, 1917

Live Stock as Hired Help

CONDITIONS seem to indicate this spring that any aid in solving the labor problem in the country will be acceptable. We were talking recently with some farmers in Chester Co., Pennsylvania, who last fall hogged off part of their corn crop when they were unable to get help to cut and husk it. They found results entirely satisfactory and are planning to do the same thing this year. Very often the problem of harvesting a crop has a great deal to do with the question as to what shall be planted. When help demands three dollars a day and the cost of seed and fertilizer is high, many farmers will hesitate to take a chance on being able to harvest the crop after it is grown. This is where plenty of live stock of all kinds will prove profitable, because they charge nothing for their labor, board themselves and only ask a tight enclosure during the outdoor season.

It will pay this year to work out a plan whereby the labor of each man will count for the most at harvest time. Possibly many dairying interests will turn to beef production, more young stock will be raised, sheep will dot the pastures and the lowly hog will be given a wider range than his board pen. Changes will be worked out which appear to demand the least labor and fortunate are the men or communities who have not put all their dependence on crops demanding a lot of labor. We don't mean to infer that live stock can be left to shift for themselves, but we do think they will be a big aid when it comes to harvesting. They also have the advantage of increasing the fertility of a field which they harvest and leaving it in excellent shape for succeeding crops. Returns from a crop marketed through good stock are sure and very seldom does the producer have to suffer loss through over-production or failure to secure a crop when ripe for the market.

The End of a Rainbow

APRIL 1st is the general moving day in the country. This is the time when thousands of renters move on to other places which they think offer them a better chance, and the men who move in where they leave have the same thoughts. It is only another phase of the old story told the small boy about a pot of gold buried at the end of a rainbow. The other man's chance and condition always look better than those at home. This is the reason that some of the Eastern States had elaborate booklets printed and distributed at the Panama-Pacific Exposition on the western coast telling of the wonderful opportunities in the East and why the Western States come to our eastern expositions and proclaim the untold advantages to be found in the West. The fact that thousands answer these calls is beyond question, but how many are better off because of their change and how many fail is never told. The successes which are reported come from men who would win no matter where they are located.

True, the railroads have had an influence in always making the opportunity appear at some distant place. There unquestionably are opportunities in many places and new country must be developed, but success is more dependent on the man than the environment. Numberless cases could be cited where farmers have moved away looking for opportunities and the men who took their places have developed riches where they thought none existed. Sometimes this has been due to a change of system, sometimes a change of crops, but never a change of land or climate. Some folks fail to realize that the "world do move," as old Uncle Jasper said, and they want to stand still trying to fit their fathers' or grandfathers' methods to present day conditions. Possibly it is a change from dairying to trucking (or vice versa), growing of special crops or better marketing methods which offers your opportunity at home where all your interests are. In any event it cannot be accomplished in a day, but means a gradual evolution to changed conditions. The man who keeps his eyes and thoughts open and can adapt himself to circumstances as they come is never looking for opportunities away from home and keeping always on the move.

Money to Make More Money

A GREAT deal is heard these days regarding the new farm loan act and the possibilities of borrowing money. We have wondered how many of our readers have ever gone to their banker and after telling him as much about themselves and their business as appears to be necessary under the new act, have been refused a reasonable loan. A banker when making a loan is said to test every applicant with the three C's—Character, Capital and Capacity, and if the test is satisfactory a loan is made. What the character test consists of every one can readily understand. When it comes to the capital test the banker wants to know how much of your own money is already invested in the business, for its bearing on your stability. As to capacity, he wants to know how you are fitted to invest the money you are asking for. If he has found out before that you are able to finance matters to advantage your request for a little more money will not be refused.

Plenty of working capital in the spring is a good thing to have and a few hundred dollars can be profitably invested in any well conducted farm. Some people have an unwarranted fear of going into debt and often plod along with insufficient equipment and inefficient tools, hoping to some day have the money to buy better. Why is it not better to do as all other business men do, borrow the money to get the improved machinery and then pay the interest on it while it is earning its cost for you. Surely time saved and better results obtained from their use will pay the interest and each year wipe out some of the debt. What if the railroads had waited until the earnings from their small steam locomotives made enough to electrify their lines, or what if the cities waited until the horse cars paid for the trolleys. This is the great problem of productive investment which can be practiced profitably in a small way by every one who is a producer.

Getting Closer Together

THERE is a movement brewing in Pennsylvania and New Jersey in which The Practical Farmer wants to co-operate and which we think all persons who consider Philadelphia their market would do well to boost. We have reference to the proposed bridge over the Delaware river between this city and Camden. This project has now been talked about for just fifty years, and it ought by this time to have a fairly good start. The first plans, in 1867, were based on using Smith's Island, then in the middle of the river opposite Walnut street, for a pier, but as this obstruction has long since been removed a single span will now be necessary. This might have seemed impossible to our grandfathers, but in these days of aeroplanes, submarines, skyscrapers and tunnels we are apt to look on such a feat as rather a simple engineering matter. It was only last month that the longest arch in the world was thrown open to traffic on Long Island. This was the Hell Gate bridge with a span of 1016 feet 10 inches and carrying four railroad tracks (which incidentally completes a continuous steel track from Maine to California).

A Philadelphia to Camden bridge would give southern Jersey a most wonderful development, which would broaden the home market and also make it more advantageous to enter the Philadelphia market. As a means of increasing motor traffic between the two states its effect is hard to realize. Travel, however, always broadens the traveler, so its influence ought to be for good. Finally, whatever tends to bind our people together as a nation rather than separate them into states ought to have the support of every one who sees beyond his own doorstep.

Governor Edge, of New Jersey, in his recent inaugural address came out squarely for this bridge movement. The selection of General Geo. W. Goethals, who built the Panama Canal, to be at the head of all engineering work of the state of New Jersey, speaks well for the success of this project. It only remains now for Pennsylvania to meet matters half way and a start will be made.

To Our Pennsylvania Readers

SEVERAL weeks ago we suggested that our Pennsylvania readers would serve their state and help themselves by saying a good word right now for Pennsylvania State College. There is now before the Appropriations Committee of the Pennsylvania State Legislature a bill carrying an appropriation of approximately $3,000,000 for maintenance, new buildings, stock and extension work for this institution, and it is extremely important that this bill be passed by the legislature and signed by the Governor without reduction of amount.

The lack of sufficient appropriations during past years, combined with the great growth in number of students, has caused the needs of the college to accumulate until now it is imperative that much be immediately provided for, or the usefulness and efficiency of the college will radically lessen.

Pennsylvania State College has no endowment and receives no income except from state and federal appropriations. If has done, and is doing, a work that no other educational institution in this state undertakes—especially in its agricultural courses, in which it has assumed a place in the front ranks with the best institutions in the country during the past few years. The extension work done by this institution is also exceptionally effective and every effort is being made to more and more in a practical way be of real use to the farmer and agricultural interests of the state and nation. It is interesting to note that in the ten years from 1906 to 1916 more students were graduated from the school of agriculture than during the entire period from 1860 to 1906; and still the number of applicants increases so that with the present facilities the college is unable to take care of all who desire these courses.

Pennsylvania State College deserves the firm support of the legislature and Governor of this state, and our Pennsylvania readers, as citizens and farmers, should let their representatives know of their interest in the making of this full appropriation. Now is the time to do it!

Your Front Yard—Your Show Window

GENERAL introduction of the automobile and the building of good roads have put an added premium on the appearance of country residences and their surroundings. Those who pass your door today are not always your near neighbors, but those from the next county, and very often from the next state. To them the front yard is the show window of the farm and upon it hangs your reputation as a careless or painstaking home builder. It is not expected or desired that alll farm homes should be "show places," but a little care as to how things look will often make the difference between an attractive and unattractive place. The grounds need not be elaborately planted or laid out in park style, but a few shrubs and flowers and a bit of lawn about the house always add to its appearance. In your travels haven't you ever noticed the difference in the looks of the grounds about the houses? The attractive ones are not always the largest, neither are all the small ones attractive. Much depends on the owner and his attitude toward such a seemingly unimportant matter.

A small quantity of flower seed in a few weeks can work a wonderful transformation, while vines, evergreens or shrubbery can be made to screen objectionable outbuildings. We must not count on the women folks to do it all, however; it must be a partnership job, but if given the right start Mother Nature will do more than her share.

THE GARDEN

Edited by W. F. MASSEY

All articles for, or questions relating to this department should be addressed "The Garden," The Practical Farmer, Philadelphia, Pa.

With My Correspondents

BEDDING AND GROWING SWEET POTATOES. —"I intend to bed about 100 bushels of sweet potatoes. I will not have enough horse manure for hotbed for this extent. What can I substitute for horse manure to make a heat? How will corn shucks, straw and green pine brush answer? Please give me all the information you can about bedding and growing sweet potatoes. I saw in another paper where a man said he prepared his bed well and spread an inch of horse manure and bedded the potatoes right on this, and covered with another inch of the manure right on the potatoes, and then covered with soil. What do you think of this? What varieties of sweet potatoes are best?"

The common method here among the smaller growers, is to make a slight hotbed with about 10 inches of manure in an excavation and cover it with soil, and on this bed the potatoes and cover with more soil. Then the bed is thickly covered with pine leaves from the forest. This cover is removed daily in sunny weather. Many of the larger growers here and in eastern Virginia use frames and hotbed sashes, which are far better than the first named plan. The man who bedded on an inch of manure and covered with another inch was merely wasting the manure, for he did not have bulk enough to heat and the potatoes do not need manure except for its warmth below them.

The best way to make your manure go farther will be to gather a good lot of oak leaves. Make the excavation for the bed 2 feet deep and pack it nearly full of the oak leaves well tramped down. Then mix more oak leaves with your manure, pile it near the bed and when it heats turn it over and repile and when it heats again put it on the bed from 4 to 6 inches deep, and at once cover with 3 inches of sandy soil or pure sand. Make the bed about 6 feet wide, and it will be better to have a frame and use cotton cloth in lieu of glass, but the pine straw will answer. Put a thermometer in the bed and note the rise of the heat. If it gets about 85 do not bed until it falls a little. Bed the potatoes just so as not to touch. Use no potatoes that show any brown blotches on the skin; that is the starting point of the rot. The oak leaves when heated will hold a gentle heat longer than the stable manure.

As to varieties, those that would be best in one section or in one market, would not do in another. Those who grow sweet potatoes to sell in the Northern cities always grow the dry yellow varieties like the Big Stem Jersey, Gold Skin, Nansemond, etc. For the home market in the South there is no demand for these, as Southern people want the soft and sweeter yam varieties, such as Nancy Hall, Hayman, Norton Yam and others. The people of the Northern cities boil or steam the potatoes, and a Southern yam will not submit to that sort of cooking, but must be baked or roasted.

The bedding must, of course, be done weeks before it is safe to set the plants in the field, and in this part of the country the last of March or first of April is time enough. My method of bedding differs from that commonly practiced. I use an ordinary cold frame and glass sashes. A layer of clean sand is placed in the frame and the potatoes are bedded on this. They are then covered with 2 inches or more of the same clean pit sand. The bed is then well watered with tepid water and the sashes put on. The glass is kept perfectly close until there are signs of sprouting. Then, of course, some air must be given, and the bed never allowed to get perfectly dry, and all watering is done with tepid water. I get better rooted and more healthy plants in clean sand than in soil. The sprouts are made in any event from the stored up food in the potato and not from any outside plant food, and they make better roots in sand than in any other material.

The land must be well prepared beforehand and the fertilizer in the furrows over which the beds for setting the plants are to be made. In the large sweet potato growing section of eastern Virginia it is the common practice to rake up and haul on the potato land during the winter the dead leaves and rotten mold from a pine forest and spread it all over the land to be plowed under. A far better method is to sow Crimson clover the previous fall and thus have a winter cover crop on the land, and the clover turned under will make a far better preparation than the laborious raking, hauling and spreading the trash from the forest.

Sweet potatoes are the one crop for which shallow plowing is to be preferred to deep. We want to have the rooots chunky and short rather than long and crooked, and a rather hard bottom under the potatoes tends to make them of better marketable shape. After turning under the organic matter, shallow furrows are run out 3 feet apart, and in these furrows is applied about 500 pounds per acre of a fertilizer with but a moderate percentage of nitrogen and a large percentage of phosphoric acid and some potash, if available. Where the materials can be had a mixture of equal parts of cotton seed meal and 16 per cent. acid phosphate will make the best fertilizer, as the meal carries nearly 2 per cent. of potash. I prefer to pull the plants and set them at once in tubs of water, carrying them to the field in buckets of water and setting the plants with dripping roots. They are set on the low ridges made by throwing a furrow from each side over the furrows in which the fertilizer is placed.

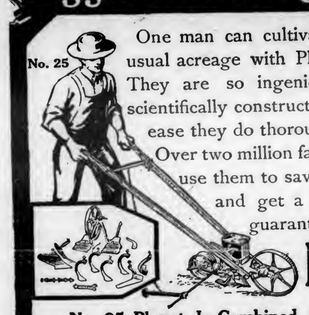
Cultivation is done entirely with the cultivator. In my boyhood it was the common practice to use the hand hoe liberallly in the sweet potato patch and to pull up the soil into high hills or ridges. We have learned that that was a waste of labor and resulted in worse shaped potatoes. I am often asked if the vines should be pulled loose from the soil where they are apt to root. I have never found any advantage in this, for the leaves should never be damaged in any way, as they are the means through which the plants make the potatoes, and if the plant foods in the soil are balanced it does not matter how rank the vines grow.

To make a later crop for wintering over for the spring bedding, make cuttings of healthy vines and plant them in August and cultivate just as the early crop. These late-grown potatoes keep more easily than the earlier crop, and make far better bedding stock than small potatoes culled from the general crop.

GROWING GLADIOLUS CORMS. — "Is it profitable to grow gladiolus bulbs?"

That depends on the man and his skill. There is a host of people growing gladiolus corms and selling them. Some use the horticultural publications to advertise their product and others simply put them in the hands of the wholesale floral commission houses. If you have a light mellow soil of good fertility and have a knowledge of the work and are familiar with methods and varieties, and then make a reputation through advertising, there is no reason why you should not make the gladiolus or any other popular plant a success. But experience keeps a dear school, and you had better learn all about the gladiolus by growing on a small scale before attempting the market production.

The implements that get bigger farm and garden crops



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Soils and Field Crops

Conducted by A. E. GRANTHAM

In this department will be answered questions relating to soils and their improvement, field crops and the use of lime. Questions should be addressed to the "Soils and Field Crops" department, care of The Practical Farmer, Philadelphia, Pa.

Depth of Plowing for Corn

A subscriber asks us to discuss the depth of plowing for a heavy clay soil. This is an important question to all farmers on any kind of soil. It has been recognized for a long time that the depth of plowing determines to a large extent the fertility of the soil. The active fertile soil of a field is that which is ordinarily turned by the plow. Below this depth the soil is less thoroughly aerated and contains less available plant food. Hence any means by which the "top soil" may be increased in depth is good soil management. The most economical method of doing this is to plow a little deeper. Deep plowing may be done to better advantage for crops like corn, tomatoes and potatoes than for small grains. In

Planting Onion Sets on a New Jersey Truck Farm

a clay soil, particularly if it is covered by a sod, it is well to plow one-half to one inch deeper than usual. This, of course, means that the total depth should not exceed 8 or 9 inches at the maximum. When the ground is turned for corn each rotation the depth of plowing may be slightly increased. It will not do to turn up too much of the subsoil at one time. The subsoil, on being exposed to the air, in time takes on the character of the other top soil. Another reason for deeper plowing is that the surface or feeding soil will contain more moisture during the growing season, thus enabling the plant to withstand the drought more readily. If it is desired to increase rapidly the depth of plowing in a clay soil the ground should be plowed late in the fall or early winter. The action of the frost will tend to break down the stiff clay subsoil that has been upturned and little, if any, bad effect will be noted in the crop the first year. Ordinary clay soils should be turned to the depth of 7 to 8 inches eventually. The more organic matter that can be turned under during the process of increasing the depth the better, as this aids greatly in changing the crude subsoil to a condition favorable to plant growth.

How Shall We Apply Fertilizers for Corn?

The methods of applying commercial fertilizers on land for corn are changing quite rapidly. Formerly it was considered the best practice to apply the fertilizers in the hill or in the drill row at the time the corn was planted. A careful study of the results by practical farmers has led to the conclusion that there are conditions where this method may not be satisfactory. For example, when the fertilizer is placed in the hill or near the hill of corn the tendency is for the roots to gather near the mass of available plant food instead of distributing widely through the soil as they would under ordinary conditions. This lessens the resistance of the plant for enduring drought, for the reason that the roots of the plant do not have such a wide space to draw upon for moisture. Also under this method of application the dry weather may cause the corn to burn, due to the concentrated plant food. It is a common experience of corn growers that fertilizers when applied in the hill often cause the plants to grow rapidly for a time and then a reaction sets in, with the result that the crop often fails to fulfill its promise as shown by the early growth. When fertilizers are put on broadcast and harrowed in before planting or drilled in with a wheat drill, the plants grow continuously from the start and are not affected by dry weather. The corn roots more than overlap the space between the rows, and any plant food that is applied broadcast will be found by the corn plants. Personally, I prefer to use a disk wheat drill in applying fertilizers for corn. The fertilizers are then put at any depth desired, although for corn about 3 inches is satisfactory. The disk drill is used before the final harrowing of the land, so that the drill also serves to put the ground in order. When used in this manner the application of fertilizers is not an extra operation. Farmers are fast coming to the opinion that fertilizing corn in the hill is a mistake. It may be supposed that less fertilizer is needed if applied in this way, but the grower is deceiving himself. The poor policy of hill fertilization is seen in those localities where Crimson clover or vetch is seeded as a catch crop in corn at the last cultivation. A poor stand is generally secured except near or on the hill of corn, showing that the residue of plant food benefits the clover but little. I have seen Crimson clover fields where the previous crop had been tomatoes fertilized in the hill. The only clover to be seen was tufts at regular distances apart each way, showing exactly where the tomato plants had stood.

Preparing for Alfalfa

In answer to inquiries made as to the advisability of the spring seeding of alfalfa, the agronomist of the New Jersey Agricultural Experiment Station states that this practice is sometimes a success, but more often a failure. As there is usually sufficient water supply for spring seeding, the weed problem

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becomes the limiting factor. Since the weeds are more difficult to control in the spring than in the summer, alfalfa cannot compete with them, hence spring seeding of alfalfa ordinarily is not advisable. A nurse crop, such as oats or barley, is sometimes successfully grown with alfalfa. It tends to check the weeds by its rapid growth, but this advantage is more than offset by the check given the young alfalfa plant in taking away from it the water and plant food it needs and sometimes in shading too much. The condition of the soil with reference to moisture and fertility should be carefully considered before using a nurse crop. If it is sown, one bushel of oats or barley to the acre should be used. Preferably, the nurse crop should be cut for hay before it matures. As a rule, the practice is not recommended. Any one contemplating the spring seeding of alfalfa should bear in mind the fact that the weed growth will very probably prevent a good stand.

As August is the best time for sowing alfalfa, how to handle a field until that time is often a problem. The New Jersey agronomist advises that a combination of oats and field peas makes an excellent crop for this purpose. This mixture can be seeded at the rate of 1½ bushels of oats and 1½ bushels of peas to the acre early in the spring. It grows best in cool, moist weather. It is ready to cut for hay about a month before the time for alfalfa seeding. After it is harvested the ground can be plowed, and harrowed every week or ten days to keep down the weeds and conserve the moisture. Thus the land does not lie idle for a long period, and, since the pea is a legume, nitrogen is added to the soil. A fair yield of oat-and-pea hay is two to three tons to the acre. The crop is especially valuable to the farmer who needs more hay than usual. As a rule, Canada field peas should be inoculated when sown, if the ground has not already grown them. Although the peas may make considerable growth, the nitrogen content will be lower when they are not inoculated, if they had not been grown in the soil previously.

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If you have stump land or woods, put it to work. Every available acre means increased profits. No farmer today can actually afford to pay taxes on loafer stump land. This period of high prices demands the work of every bit of land you have. Clear every bit of your stump land. It ought to pay you big profits the very first year and for years to come.

Queries Answered

Growing Sweet Clover. — W. A. R., Delaware, writes: "Please give me information regarding sweet clover—the proper time to sow, the kind to sow and preparation of the land. What kind of a crop can I sow with it so as to realize a return while the clover grows? Or is it best to sow alone? What kind of fertilizer shall I use?"

Sweet clover may be seeded at once in the wheat as is the common practice with Red clover. Land that is to be seeded to oats may be seeded to sweet clover at the same time. If sown with the above crops no fertilizer other than that furnished the grain will be needed. It is best to use the scarified or scratched seed, as it will germinate more quickly and uniformly than the untreated seed. The White sweet clover is the best type to grow. If it is not convenient to seed with a nurse crop as indicated above the land may be prepared as for alfalfa and the clover seeded during the month of August. It would be well to lime the land in advance of the seeding and use about 250 pounds of acid phosphate per acre. Sow about 18 pounds of seed per acre.

Eliminating Commercial Fertilizers. —R. H. B., Pennsylvania, writes: "My intention is to convert my farm in Chester Co., Pa., into a hog farm, feeding for the market. Do you, in your opinion, think that with a three-year rotation of corn, rye and clover, pasturing the clover off with hogs and applying liberal quantities of stable manure each year one could eventually eliminate the use of commercial fertilizer?"

One might do without any commercial fertilizers by establishing a good rotation and using plenty of manure, but it would not be good soil management. Manure is deficient in phosphoric acid, although it contains practically the same percentage of nitrogen and potash. In other words, all manure is unbalanced with respect to the proportions of plant food it carries. The most profitable results will be secured by applying 200 to 250 pounds of acid phosphate per acre per year on the grain crops in addition to the stable manure. Also, it will be necessary to keep the land sweet by liming. Your rotation should work well for hog farming.

Potato Raising

(Concluded from page 139)

found and has long been the standard. Arsenate of lead at the rate of one pound of the powder or two pounds of the paste to 50 gallons of water will be found just as effective and will remain on the foliage longer. Last year we put our spray barrel in the one-horse two-wheel cart, then rigged four nozzles at the back so that with one to drive and one to pump to apply the arsenate of lead we could make short work of the bugs. It is hardly fair to speak of potato bugs without mentioning the old-time tin can and kerosene method of attack. Where the small boy is available this will help solve the problem, especially when we remember that each female can lay from 1000 to 2000 eggs.

Of recent years early and late blight have secured such a hold on the potato crops in some sections that without proper spraying for these diseases the crops would not be profitable. The old adage that "an ounce of prevention is worth a pound of cure," was never more true than in this case, as no spray has yet been found which will cure blight after it has a good start. The only way to do is to keep the plants copper-plated with Bordeaux mixture from the time they are 4 to 6 inches high. The mixture is made same as for orchard use and is applied with field sprayers. Three pounds of quick lime and two pounds of bluestone are used to make 50 gallons of spray. The bluestone is dissolved in warm water in an earthen or wooden vessel and poured into about half the quantity of water desired for the spray. The lime is slaked, made into milk of lime and added to the dissolved bluestone. More water is added while the whole mass is stirred and fitted to go through the spray nozzles. Large growers now use power sprayers for this work and are able to cover from four to ten rows on one trip across the field. By adding arsenate of lead to the Bordeaux mixture the Colorado beetles are killed at the same time the blight preventive is put on.

As in everything else, it is well to have faith in the potato crop. No one has ever been known to grow 300 bushels to the acre if he believed 150 bushels his limit. Seed and planting cost are about equal in all cases, but it is the extra attention in various ways which counts when digging time comes. The grower who had a thousand bushels on hand the first of this year was indeed fortunate and he won't soon lose faith in the crop which ranks sixth in agricultural importance in this country.

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POULTRY

Edited by F. V. L. TURNER

All letters, inquiries and requests in reference to poultry, should be addressed to the Poultry Editor of The Practical Farmer, Philadelphia, Pa.

Practical Poultry Talks

To Double the Egg Yield

For about three years the editor of this department has urged upon readers the necessity for improvement in breeding, as well as suggesting that better conditions of housing and feeding would amply repay the poultry culturist for any extra time or expense.

Now that there is almost every prospect that eggs next fall, winter and spring are going to be higher (at least as high) than this past fall and winter, is it not imperative that whatever hatches made from now on be from better birds?

It is not too late to hatch, not by a good deal—and it only requires four days after mating to secure 80 per cent. fertility, all other conditions being equal—therefore the purchase of a vigorous, healthy male and the selection of a few heavy laying females from your own flock will work wonders in raising the egg yield of the entire flock, the young males going into your breeding pens next spring. The pullets from these matings will open your eyes to things never thought possible before. Let's talk the matter over just as it is, from your side and from mine. I am willing to confess just about the don't know side of it as you are.

For twenty-three years I have raised poultry—until ten years back I regarded hens as layers only from what I had accomplished myself. When I had my first 100 hens I thought that I was a wonder because I secured 42 eggs in one day (it was in December). The following fall I had exactly the same experience I always had in previous years, a few eggs in November, a few more in December, very few over the previous month in January, and did not really begin to get any real quantities until the latter part of March, when every layer began to sit.

Naturally I unwillingly accepted the truth—I knew nothing about the egg getting game, never dreaming that breeding had anything to do with the case or that my methods of feeding, care and housing could be improved upon. By pure accident I ran across an advertisement of a book claiming to tell how to secure 200 eggs a year from a hen, the author being a minister. Probably many of our readers know of the book and the author. If you do, well and good; if you do not, I shall not tell you, for many reasons. The minister was correct; it could be done, and I did it just as he did it, *with those hens that were capable of producing 200 or more eggs by the right of heredity.* Some, such a big *some*, of my hens *could not lay 30 eggs in a year.* Now you "fess up;" how far have you gone to *prove* what your hens can do?

To me, when I bought the book, trap nests were unknown—I selected what I thought were good layers by size alone, six of them, housed them in a neat little coop, scratching shed adjoining, and fed the way the book said. In a week every bird ate out of my hand. I lived with them, almost slept with them and religiously counted and recorded every egg. Two laid over 200 eggs, one laid around 135 and three laid less than 40! But my average for this small flock was 3o per cent. higher than my flock of 94 birds!

Never in my life was I so severely shaken mentally. I knew nothing of heredity; breeding was of little consequence from my viewpoint because I had no thought that egg production depended upon anything other than feed; just more feed, more eggs. All of us know that the 8-quart cow eats just as much as the 18-quart cow; that the race horse does not consume any more feed, if as much, as the plow horse.

My awakening came quickly; if there were 200 eggs in a particular hen her progeny should be equally as prolific. Wrong again, but I did not know it, though I was on the right track. Later I learned that this 200-egg hen's offspring must have both parents with the same inherited power, or force, or something. Clearly, if the mother of a male bird was a good layer, this male's female offspring would be good layers, too. As a result of these "discoveries" (for they were as diamond mines to me then) I thought of laying contests to prove my theories and they have been *proven beyond dispute.*

Getting down to the point in question, my confession is that of many past and present day poultry raisers and the sooner more confessions are made the quicker the money will come from better breeding, etc.

Don't confess out loud, if you don't want to—take yourself out to the chicken house, look the birds square in the face and tell it to them. They won't understand you; many of them will be sorry for the confession because they will part company with an indulgent, liberal, but very unwise, owner; and you will be the gainer.

Perhaps you have never trapnested—perhaps you feel you haven't the time. Take it; it pays. Surely you know some of your good layers by sight; become better acquainted with them. Place them in comfortable quarters; give them a good laying ration and mate them to a male whose mother was a good layer. Probably half of the female result of this mating will be good layers. You can prove it with a few trap nests next fall and winter. Save their brothers and mate them to good layers, secured by the trap nest. If you wish to postpone your confession till next year, your public confession, I mean, do so, but you owe it to yourself, your finances and your means of a livelihood to make it sooner or later.

Optimism is a great thing to conjure with—of course, you cannot feed chickens on it, but an optimistic mood, even when walking around the chicken yard, seems to have a good effect on the egg yield. Ever try it?

Speaking of optimism, did you ever drop a hat or apron full of eggs?

No More White Diarrhea
"I have been raising poultry for forty-five years and never had much trouble except from white diarrhea. Sometimes I have lost my entire incubator hatch with this dread disease. Two years ago a friend told me what wonderful things IOWITE Chick Tonic had done for her chickens so I sent a dollar money order to The Wight Co., Dept. 592, Lamoni, Iowa, for two fifty cent boxes and I want to say the result was wonderful. I used it about eight weeks and raised over six hundred chicks and never lost one. I did not even have a droopy one in my flock and I will never try to raise another hatch of chickens or turkeys without IOWITE Chick Tonic."—Mrs. H. E. Blythe, Unionville, Mo.—Adv.

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Making Pullets for Market

There is a nice business everywhere, every fall, in the sale of ready to lay pullets and therein the incubator serves a double purpose in working overtime, in between or at the end of the season. April, May and June hatched pullets have a market value that immediately raises them to almost a fixed place in price and profit. April hatched pullets are worth more than May hatched, and June hatched are worth less than either. If you require only 100 pullets and secure that many your needs are satisfied, but another hundred (with the 100 or so cockerels sold as "springers") will give you a neat little sum when it is most needed. The winter's grocery staples, sugar, flour, canned goods, etc., and a supply of coal and quite a little clothing can all be purchased from the sale returns from 100 cockerels and a hundred pullets. April cockerels, sold in June or July are at least worth 25 cents each, and 100 April pullets are always worth $100 in late October or early November.

Neighbors are usually willing to purchase 10 to 20 ready-to-lay pullets in the fall—you can drum up enough of this kind of trade to pay nicely right in your own vicinity. Try it out this month and you will be surprised at the results. It will not cost over 35 cents each to raise the pullets, 25 cents of which will be paid back by the cockerels. Isn't $90 worth going after?

Hatching Hints

Eggs selected for hatching should weigh not less than 2 ounces nor more than 2¼ ounces each.

Eggs selected for incubation should have clean, smooth, strong shells which are free from ridges, cracks, transparent spots or lime deposits

Where all of the eggs considered are of the same variety, there is a definite correlation between the size of the egg incubated, the size of the chick when hatched and the size of the chick from 10 to 20 weeks old.

Eggs selected for hatching should be of a true egg type. Exceptionally long eggs and very short, rounded eggs are equally objectionable. Malformed eggs should never be incubated. These eggs are usually difficult to hatch. White eggs and brown eggs should not be incubated together.

Do not under any circumstances help chicks out of the shell. Chicks which do not have enough vitality to get out of the shell, either because of a lack of vitality in the egg or because of faulty incubation are not worth having.

Kill and burn all weak or crippled chicks as soon as the hatch is over. Weak chicks are always a menace to the flock.—Ohio College of Agri.

What We Are Asked

Slipped Wings.—P. K. W., Pennsylvania, writes: "Recently I noticed that the wing of one of my chickens was hanging down. I tried to move it but it seems as though it was out of joint. She looks pale, sits on the roost all day and does not eat. She laid up to the time this happened. Would you please tell me what to do?"

It will not pay to treat this case. Slipped wings can sometimes be brought back to normal—other cases may be permanent dislocations from various causes, such as getting the wing caught and the attempt to get away does the injury. It is better to kill the injured fowl to prevent starvation and death later.

Tells Why Chicks Die

E. J. Reefer, poultry expert, of 436 Reefer Bldg., Kansas City, Mo., is giving away free a new book which tells of a simple home solution that raises 98 per cent. of all chicks hatched and cures white diarrhoea over night. All poultry raisers should write for this valuable free book.—Adv.

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Be Prepared For It
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HORTICULTURE

Edited by C. A. McCUE

Spraying the Apple

The time to begin the season's spraying campaign is at hand and it might not be amiss to briefly review the sprayings for the apple.

In many orchards only a few short years ago the ravages of the San Jose scale was an important problem for consideration; today, thanks to efficient spraying and the natural enemies of the scale, that insect no longer is a menace to good apples and healthy apple trees. The scale is becoming so scarce in many orchards that the owners are seriously considering doing away with the dormant sprays. No doubt there are hundreds of orchards that as far as the scale is concerned do not need dormant spray. It, however, has a general beneficial effect upon the tree, by keeping the bark clean, and doubtless aids in controlling other insects and not a few fungous diseases.

One of the most troublesome insects in the apple orchards during the past few seasons has been the aphis (plant lice) and consequently considerable attention has been given to their control. During the past two years we have been hearing a good bit about the delayed dormant spray. In common parlance, "delayed dormant spray" means a spraying with lime-sulphur just as late as is possible without injuring the foliage in the opening buds. The lime-sulphur is used at scale "strength;" that is, one part commercial lime-sulphur to 9 to 10 parts of water. (The stock solution of lime-sulphur should test 31 to 32 degrees Baume.) Spraying at this late date not only controls the scale, if any be present, but also will likely control the aphis which lay their eggs upon the buds and branches near the buds, where they may be seen as black, shining spots during the winter. In the early spring about the time the buds begin to nicely swell and partially open the aphis eggs hatch and at the time of the delayed dormant spray the newly hatched insects are present in large quantities. A lime-sulphur, or miscible oil, spray at this time will kill all these insects that it touches. When we consider that each one of these freshly hatched lice may be the potential mother of thousands of plant lice during the season we can see how important it is to destroy them. Just as the city and country have a "swat the fly" campaign each spring, so should the apple grower have a "swat the aphis" war cry when the buds begin to swell. The second spraying of the apple is called the "cluster bud" spray and takes place when the blossoms begin to show a little pink. This is the all important spray for controlling apple scab. In cold, wet springs it is almost hopeless to suceed in controlling scab on some varieties if this spray is omitted. While the writer prefers to use Bordeaux mixture for this spraying on many varieties, the present high cost of copper sulphate makes it almost prohibitive. Commercial lime-sulphur, however, makes an excellent spray for scab control at this time. The amount used is 5 quarts of 32 degree lime-sulphur to 50 gallons of water. If one adds arsenate of lead at the rate of 1¼ pounds of powdered arsenate of lead or 2½ pounds of paste arsenate of lead to each 50 gallons of lime-sulphur spray the fungicidal value of the lime-sulphur will be greatly increased. Some claim that arsenate of lead added to lime-sulphur increases its fungicidal properties by at least 50 per cent. Adding the arsenate of lead also has the added advantage that if any chewing insects are roaming about over the apple trees at this time they, too, will be killed.

If for any reason the delayed dormant spray had not been given, or aphis are found to be present at the time for the "cluster bud" spray, nicotine sulphate at the rate of one gallon to 800 gallons of the spray should be added. The addition of the nicotine to the spray (it may be added to either lime-sulphur or Bordeaux mixture) will practically wipe out the aphis.

It is almost impossible to control aphis after the leaves get large enough so that the lice can hide on the under side.

The third spraying, or "calyx cup" spray, is given just as soon as the bloom falls and before the "eye" of the little apple closes. This spray is the all-important spray for codling moth, and aids materially in controlling apple scab. For most varieties, and particularly during wet springs, lime-sulphur should always be used. There is too much danger of russetting the young fruit if one should use Bordeaux mixture at this time. The lime-sulphur is used at the same strength as for the blossom cluster spray and with the same amount of arsenate of lead added.

It might be remarked here that the powdered arsenate of lead is just as efficient as the paste, and much more convenient to handle and saves a great deal of time in preparing the sprays.

The calyx cup spray should be applied with a 45-degree angle nozzle, in order that the spray may be easily forced into the blossom end of the apple. Unless the arsenate of lead is deposited in the calyx of the apple one cannot be sure of controlling the codling moth.

About two weeks after the calyx cup spray the "follow up" spray should be given. Here again we use lime-sulphur spray, 5 quarts of 32 degree Baume lime-sulphur, 1 pound of powdered arsenate of lead to 50 gallons of water. This spray is very important if the spring is wet and cold, as under such conditions there is always danger of late scab infections and a delayed brood of codling moth.

The spray program is now complete as far as the early apples are concerned; but with the late fall and winter varieties there is one more spraying that should always be done, and often still another. These sprays are both summer sprays and it is best to use Bordeaux mixture rather than lime-sulphur. The first one we will call "early summer spray." This is applied about the first of July, using a half strength Bordeaux mixture (2-2-50). If chewing insects are troubling, add arsenate of lead, or if plant lice are bad add nicotine sulphate as in the blossom cluster spray. This spray, however, is seldom needed unless one has a variety that is susceptible to blotch or late scab infections.

The next spray we will call the "late summer spray," and it should always be made with Bordeaux mixture and arsenate of lead. Whether or not we use half or full strength Bordeaux will depend a good deal upon the diseases present, the susceptibility of the variety and the weather conditions. The application should be made from July 25th to August 1st. This spray is for the second brood of the codling moth, apple blotch, fly speck fungus, the lesser apple worm and a host of minor insect and fungous troubles. Many apple growers neglect this spray. It should, however, never be omitted for late varieties. Many growers paid dearly last year by neglecting to use the late summer spray.

There is no danger of russetting apples by using Bordeaux mixture for the summer spray and lime-sulphur for spring sprays.

Many of the failures with fruit trees that are blamed upon the nurseryman are directly caused by the careless handling of the grower at planting time.

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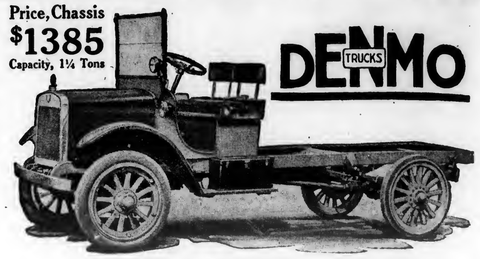

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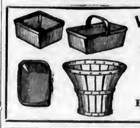

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OUR EXPERIENCE POOL

All our readers are invited to contribute their experiences on the topics under discussion. $2.00 will be paid for the best, and $1.00 for the next best contribution, and 50c for each other article published. Contributions must be in our hands 15 days before date of issue.

TOPIC No. 1217, APRIL 15.—Time is coming to turn the cows out to pasture. Are you troubled at first with garlic flavor in the milk and how do you overcome it? How do you cool and care for the milk before it is shipped? What kind of pails do you milk into, and why?

TOPIC No. 1218, MAY 1.—How are you fixed for labor this season? Do you find it better to hire by the month or by the day, and what do you pay? Have you been compelled to change your plans on account of insufficient help, and if so what change have you made? What farm equipment have, or will you add this year to overcome these difficulties?

TOPIC No. 1219, MAY 15.—What machinery have you found essential to successfully handle the hay crop? Tell us in not more than 250 words what you consider the most important features of this annual hot-weather job.

Topic No. 1215.—What has been your experience in tile draining land? How much has it cost you for each rod laid, and what have been the returns? Have you used a horse or power machine for digging the ditch?

G. H. D., Meetze, Va.—By doing my ditching at odd times with farm labor, using turning plows for digging the ditches and filling in the trenches after the tiles are laid, I find that it costs me 72 cents per rod. It will pay the man who has much ditching to do to purchase a level for about $15, as the use of this instrument is the only certain way of determining the proper fall. Even if a farmer has to hire a surveyor to assist him in running the levels it will represent money well invested. Time and again the failure of a drainage system is due to the ditcher who was unable to obtain the correct fall.

I use a sharp plow point in plowing out the ditches, going up one side and down the other as though I were starting a back furrow, using a wide double-tree so that one horse walks on either side of the ditch. After turning up as much soil as possible I stop the team and with one or two helpers shovel out the loose dirt by hand. I continue this work until the ditch is about 10 inches deep. Then I remove the mold-board from the plow and hitch the doubletree to a stout chain about 4 feet long, fastening the other end of the chain to the beam of the plow. This enables me to continue plowing out the ditch to a depth of 2 or 2½ feet, or more, dependent on the character of the soil. Of course, I have to stop the plow and shovel out the dirt as often as enough dirt is turned to prevent further plowing. The work of finishing the trench and making a level bottom has to be done by hand with pick and shovel.

I use a pole with an elbow on the end, by means of which I lower the tiles into the ditch and place them in the proper position without having to crawl along in the trench to do this work. After the tiles are all in position I turn the dirt piled along the bank back into the ditch with the plow and a one-horse scoop, trampling the soft dirt as much as possible to settle it, and using hand-shoveling to finish up the job. My experience has been that under average conditions the first two crops will pay the ditching expenses where a system such as mine is practiced.

E. J. J., State College, Pa, — Tile draining is used quite extensively in the section in which we live. For the 20 acres which we drained, counting the home labor that was used for the work of ditch digging, the cost was about $20 per acre. Being located near a tile factory, we were able to haul them ourselves and thus save the freight.

The lay of the land and amount of water to be carried off has much to do with the expense. The price of the 8-inch tiles, which were used for the main drain, was about 80 cents per rod. The 4-inch used for the lateral drains cost about 25 cents per rod. If conditions are such that larger tiles are needed, the cost will be proportionately larger. It is always wise to use tiles which you are sure will be plenty large enough. Much better results are obtained if the tiles do not have to carry off the maximum amount of water of which they are capable. The land under consideration had been previously cultivated, making it less expensive to drain, but making the returns less noticeable. There was, however, an increase of 15 bushels of corn per acre the following year. These 300 bushels at 80 cents per bushel netted $240. This we felt was a pretty good return from the original investment of $400. We are aware that corn does not always sell at that price, but even at the lowest market price it would have paid well. There are returns, too, such as economy of time and labor, ease of getting-over the field, and more healthful conditions for both man and cattle, that cannot be computed in dollars. Absence of mosquitoes was one thing we all enjoyed and felt was not the least return from the investment.

We used the plow with horses for digging the ditches as deep as was practicable in that way, and the rest was dug by hand. This method will be found the most satisfactory for most farmers.

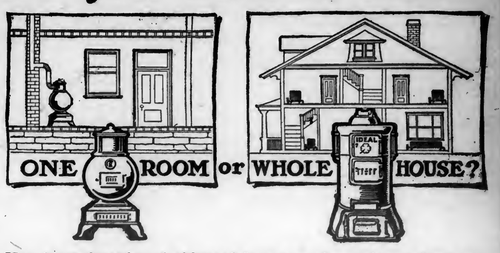
We have had no experience with the concrete drains, but if several farmers would co-operate in getting a concrete mixer and in the work of making, we think it would be a very good proposition.

C. B. McG., Caldwell, O.—Tile draining has been a success in this section of the country. The wet land is sometimes caused by the top soil being underlaid by a hard-pan or tough material, and it should be subsoiled by the use of dynamite. This will thoroughly loosen up the ground so all the moisture will drain to the tiles. If this is not done the moisture will only drain a few feet on each side of the ditch. We have a tile factory located a few miles from here, where all sizes of drain tiles are manufactured, and the price is very reasonable. The returns have been a great source of profit, for some of the fields were so wet and swampy before draining that they were almost worthless and would sell at a very low price per acre. After ditching and tiling it is the richest and strongest soil we have and will raise heavy crops and sell for from $75 to $150 per acre.

We nearly all use dynamite to do the work of ditching, as a ditch can be quickly made through swamps, willows, etc., and stones or stumps do not interfere with the work. It is the easiest, quickest and cheapest way of doing all kinds of ditching work. We have not tried the concrete drains, but use it for many other kinds of farm improvements.

R. C. U., Peach Bottom, Pa.—We have had a great deal of experience in tile draining of land. Being interested in a farm in northwestern Ohio for some years, we found it a very profitable investment to properly drain the land. Through the section of that country known as the "Maumee Valley," most of the farmers have come to realize the value of tile drains. The country is very level, so that the very first thing to do was to dig immense county ditches to carry off the water. One of these big ditches runs the full length of our farm. As soon as it was dug we began to put in tile drains. This has been twenty-five years ago—long before anything was known of systematic drainage. We drained parts of the farm that needed it most. The first long stretch of tiles we put in ran through a long, low-lying, wet piece of land. It was impossible to raise a crop on it during a wet season and the ground baked so hard that it was unprofitable farming in a dry season. Many farmers use too small a tile on account of the first cost, and thereby make a big mistake. We always use a tile large enough to quickly drain the land after and during a wet spell. Today our tile drain, laid 25 years ago, is doing fine work. It is about 100 rods long and drains about 15 acres of very fertile soil. We have been putting in such drains from year to year as we could afford it, so that today our farm is thoroughly drained. About the year 1908, with a power tile ditching machine, we put in a tile ditch averaging 2 feet deep and 113 rods long in just two days. It took two men to operate the ditcher. My father laid the tiles and I followed after with team and scraper. It cost 34 cents per rod for ditcher and tiles for this ditch, and we feel that it has paid for itself several times already. Now we farm the ground that used to be a swamp in harvest. It seems that our farm is doing better each successive year, due to a certain extent to careful drainage. Where the country lies perfectly level the farmers are first putting in a big tile drain (some a foot in diameter) from 2 to 4 feet in the ground, and this empties into some creek or county ditch. Then they will drain their land by tapping into this main drain about every 6 rods. The distance that the subdrains are placed is governed by the soil. I believe that the average tile drain more than pays for itself, if put in properly, in two seasons.

Do you want to heat—



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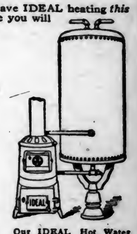

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The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

APRIL 15.—What are you doing to make your children take a personal interest in the farm and farm life? Is there any organized effort in your community working along these lines? Have you planned any special features or amusements for the summer?

MAY 1.—We have had a number of readers suggest the subject of house cleaning as an "Exchange" topic for discussion. We presume they want to know how to overcome it or lighten its burdens. Tell us in not more than 250 words how you meet this annual or semi-annual problem.

MAY 15.—During the hot weather what kind of a stove do you use for cooking and where is it located? How do you get hot water? What have you found the best way to keep a stove polished? Tell us in not over 250 words any unusual arrangements you have for doing summer cooking.

Get your contribution in early If it does not reach us at least 15 days before the date of issue, it will be too late.

Tell us of some short cuts or easy ways and aids for doing the family sewing. To what extent do you find it economical to buy your and your children's clothes ready made?

Mrs. L. B., Sinclairville, N. Y.—These are some of the short cuts I have found in sewing: Have machine cleaned, oiled and adjusted, and plenty of thread of size and color required. Use perfect fitting, up-to-date patterns; test them on old, cheap material; baste and fit the garment, then rip it and cut all you intend to make. Select plain styles; flat bands of different colors or embroideries are much more quickly finished than laces which have to be sewed separately. Use stout cloth for bands and coarse thread for buttonholes out of sight. Choose silk on patterns whenever practical. If you have no adjustable skirt guage, find a box or book just the right height to mark the length of skirts.

Single stitched seams, overcast if necessary, are much quicker and less bungling than French, lapped or felled seams. Learn to stitch all plain seams on ordinary garments without basting. After garments are cut and each rolled separately, a suitcase is very good to hold them and all surplus pieces, buttons, thread, etc. You can open it beside the machine, or close and put it away without disturbing your work or littering your room.

Choose the sunniest corner of your sitting room for your sewing. Use reliable patterns and make your clothes as other people wear them. Buy your suits, coats and men's clothing ready-made, unless you are an expert at sewing. If you are you need no advice from me. But children's clothes, house dresses, shirtwaists, underclothing and bedding can be made much more economically at home by any woman.

Mrs. R. C. McW., Homer City, Pa.—In sewing for children, I have found it a help, when making several garments over the same pattern, to cut all at once. In this way one can make the sleeves for all at one time and run up long seams, leaving hand work to be done in same way.

In making a lace yoke it will be found easier if you baste your insertion on paper before stitching on machine. The paper can be torn from underneath.

As cheaply as we can buy ready-made clothes from mail order houses, the average farmer's wife has not time to waste sewing, for it generally has to be done at night after a hard day's work and there is always plenty of mending to be attended to, or new bed clothes to be made.

I have heard women remark, "Oh, this is just for every day, anything will do." I am sure if they consulted the head of the house anything would not do. Every day is the day we want to look tidy. A neat gingham or percale neatly made is the farm wife's uniform. We need not be ashamed to go to the door, or have to run into the house if we see some one passing. The day of home sewing will soon be numbered with the days of weaving, knitting and spinning. Machinery has taken the place of the needle and thimble, giving the housewife more time for reading or other recreation.

Mrs. F. M. H., Nashport, O. — The first and ever most important short cut in sewing is in the selection of materials. It takes no more time or effort to make up a good gingham than a cheap calico or lawn. The gingham will outwear six calicos or lawns and always be more dressy and pleasing. The only trouble with gingham is, it shrinks when washed. That may be overcome by shrinking in the piece or allowing for shrinkage. Shrinking may be done by pouring not salt water over the goods, rinsing and drying enough to iron. Allowance for shrinking may be made with tucks or wide hems put in with a loose stitch. Again, avoid extremes in color and style.

Do not fit too snugly. Do not sew with a tight tension. Cheap basting thread I consider a nuisance. Gathering and shirring are quickly and evenly done on the machine by loosening the tension and, if necessary, lengthening the stitch, then drawing the under thread to desired fullness. Dress snaps are easier to put on than buttons and making buttonholes, though not satisfactory on things that are ironed.

We have only boys to clothe. It does not pay to buy cheapest clothes. It is best to buy ready-to-wear the little man's dress up suits and to buy all things for the big boy and his father. I think it cheaper and more satisfactory to buy material and make, or have made, my own dresses.

Mrs. B. N. S., Sidney Center, N. Y.—Unless you are an expert needlewoman I think it is best to buy tailored suits, coats, and occasionally a best dress ready-made to get a touch of style that the home dressmaker fails to supply. Most of us do our own plain sewing, however, and I will give a little of my experience in finding short cuts. In making sheets, if economy of time rather than money is an object, it is easier to buy the wide sheeting which only requires hemming, but if, like with many farmers' wives, one dollar must be made to do the work of two or three, then you will find it more economical in the end to get the yard-wide muslin and sew it together, then when the sheets wear thin in the middle, they may be ripped apart and the edges sewed together, thus giving the sheet a new lease of life. Everyday sheets may be sewed up very quickly by laying the selvages together, lapping one over the other just enough so that the needle will catch through both, and stitching on the machine.

For children's clothes select materials with a view to their wearing qualities and fastness of color, and consider the purpose for which the garments are to be used, the actual work required in making and the time and labor required in laundering. Straight seams are easier to stitch than curved ones; tucks, plaits, smocking and shirring take time, more material and are difficult to iron. Garments which way be adjusted by slipping on over the head require fewer buttonholes and buttons than those fastening down the back or front. It is a great saving of time to buy buttonhole tape by the yard all ready to sew on under the laps. The hook and eye and snap fastener tape is also a great convenience in making grown-up clothes.

Mrs. K. R. G., Ulsterville, N. Y.—Here are a few short cuts and helps for the busy housewife. When the children's dresses become too short, rip open the shoulder seams and insert strips of insertion. This will make the arm hole larger also. A narrow yoke may be widened by putting in a strap of insertion in the front and back.

For quick shirring loosen the upper tension of sewing machine and stitch where goods are to be shirred, draw up the lower thread of stitches and the work is done in less than half the time it takes by hand.

Always make two sets of strings for babies' caps or bonnets and attach them by small safety pins. When one set is soiled another can be put on and the bonnet saved from many washings, as the strings are usually soiled long before the cap itself. When the housewife has the time, I think it is more economical for her to do all the family sewing possible, as the material thus used is far better than in ready-made articles.

M. G. B., E. Stroudsburg, Pa.—At the end of each season you should examine all clothes carefully before putting them away, and make a list of the things which are needed. You should buy your correct size dress pattern before you buy your material, otherwise you won't know exactly how much you need. In using the pattern, be sure that it is the right length in the skirt, sleeves and waist before you cut into your material.

I place the sewing machine in a good light and within reach have a table large enough to hold all things necessary for the work. I do all the cutting at one time; carefully pin the pieces of each garment together before laying it aside. Next do all the basting and then the fitting. Now you are ready for the machine sewing, and if the above rules are carefully carried out a number of garments can be sewed at one sitting. The hand sewing which is necessary to finish the garments can be done at one time.

In buying clothes ready-made I always select those which will serve as many purposes as possible. I also choose styles which will remain fashionable for the longest possible time, so that they will not have to be discarded or made over because they are out of date. There is no reason why even on a limited dress allowance you should not have a correct wardrobe. It is a question of using your brains, your thrift and your industry in place of money.

Miss E. H. R., Beulahville, Va.—I do all my own sewing except my coat suits, and make my father's every-day shirts and pajamas. I save time by making every moment count. My sewing materials and work basket, with some "pick-up" work, are always near at hand. Often when I am seated at my cutting table with patterns and pins convenient, I find it easier to cut out several garments at one sitting, fold them neatly with all parts together and lay them in my basket. My greatest sewing help, however, is my friend and companion, "Betsey," who stands by my side in all hours of need. Betsey is my dress form, and never was money more wisely spent. All the disagreeable undressing, trying on and dressing up again, so provoking and time consuming, are done away with. With a touch of my hand I can send Betsey spinning around on her pedestal from front to back and back to front. She never complains of being tired, and many a dress has been practically made on her, while nearly everything I make for myself is first tried on Miss Betsey. For the first time in my life I can "see myself as others see" for Betsey is my "alter ego."

Preparedness

There are some topics that we do not discuss in polite society. They are tabooed. However, this does not prevent some of us who have wandered far from home from feeling strongly about them. Such a topic is the source of inspiration of Farmers' Bulletin 754. Because of my experience I can heartily recommend to hotel keepers, boarding house keepers, and even the careful housewife herself, the government bulletin on the bedbug.

This bulletin gives the curious quite a little general information about the bed bug, while, on the other hand, the practical can find suggested means for his extermination. If you care to read it, write the Department of Agriculture at Washington, and ask them to send you a free copy, suggests Charlotte A. Baker, of the Colorado Agri. College.

This acquaintance of ours who has fallen into such disrepute, boasts a long lineage. The Egyptians knew him. The Romans knew him. Even Pliny recommends his caress as a "specific for the bite of serpents." Because he is a world-wide rover, he has many names, but his characteristics are the same.

A New Way of Cleaning Silver

The Office of Home Economics at Washington has made a thorough study of electrolytic method of cleaning silver and has published the results of their work in United States Department of Agriculture Bulletin No. 449, which can be had for the asking. They suggest the following method as being cheap and satisfactory:

"An enamel or agateware dish should be partly filled with a cleaning solution of one teaspoonful of either washing or baking soda and one teaspoonful of common table salt to each quart of water and placed directly on the stove to boil. A sheet of aluminum or clean zinc should then be dropped into the dish and the tarnished silver placed in contact with this metal. It is best that the silver be entirely covered with the cleaning solution and that the solution remain at the boiling temperature. As soon as the tarnish has been removed the silver should be removed, rinsed in clean water and wiped with a soft cloth. Zinc may be used in place of aluminum, but it becomes corroded and inactive in a much shorter time."

What Our Farm Women Ask and Answer

Mrs. R. C. McW., Pennsylvania, says: "In answer to Mrs. A. V. B., of New York, I will give my method of mixing cake, and if the ingredients are good she will seldom fail to have light cakes. First use exact measure and measure all in the same cup. Mix your butter and sugar to a cream, then add the well beaten yolks of eggs, then the liquid, beating well. Sift your baking powder and flour thoroughly, add to the other mixture and lastly fold in the stiffly beaten whites of eggs. Do not beat. The use of too much flour will cause them to heave in the middle; also oven being too hot when cake is first put in to bake. A sharp rap with a knife on the edge of the pan after cake dough is in will cause the air bubbles to burst and prevent falling."

Mrs. E. C. T., Pennsylvania, suggests that if Mrs. A. V. B. will add one-half water to her milk in mixing cakes they will be lighter. "If a cake is accidentally burned," says Mrs. T., "scrape the burned part off with a nutmeg grater. This makes a fine foundation for the frosting, as well as removes the black part smoothly. Before icing a cake I dust it over with sifted flour and the icing will not run. I have also found it advantageous to brush the layers of a jelly cake over with the white of an egg before putting in the filling. Putting a pinch of cream of tartar into the boiled icing of a cake will prevent it from going to sugar."

Mrs. A. M. P., Pennsylvania, tells us that Mrs. A. V. B., New York, (1) can make her cake lighter and finer by sifting the flour several times and if the oven is too hot it will bake too quickly around the sides and rise in the middle; same if batter is too thick. (2) Soft water and ammonia will restore color in carpet—2 quarts water and 1 tablespoonful of ammonia; sponge with a soft cloth.

"I procured several sheets of tough wrapping paper a little more than twice the size of The Practical Farmer, placed one on top of the other and stitched down the center and folded them double, making a book," says Mrs. S. M. J., Louisiana. "I use the first page for an index and on the pages following I paste the 'Women's Exchange' pages in the same order they appear in The Practical Farmer. I considered an embroidered linen cover, but decided that a white oilcloth with the name painted in water colors would look more at home in the kitchen, where I find the information in my scrap book very valuable."

Mrs. H. McK., Pennsylvania, writes us: "I could scarcely help wishing that I had some of Miss C. S.'s fruit syrups. I should have sherbet and water ices every day, especially in winter when it is so easy to have frozen desserts, as one can find ice almost anywhere. Here is my receipt for water ice: One quart of fruit juice, 1 quart water and 1½ cups of sugar. When frozen almost stiff add stiffly beaten whites of 2 eggs, or these may be omitted with good results. With fruit syrup very little sugar would be required.

"A cooling summer drink can be made from fruit syrup, using equal parts of syrup and cold water.

"Try using some of the syrup in sauces for pudding, cake, etc. It is also good on cereals. If you have any of the grape syrup why not make grape juice out of it? It is splendid for any purpose, but especially for invalids."

Mrs. E. K. S., Pennsylvania, in a letter to us, adds: "I also wish to tell Miss C. S., of Pennsylvania, how I use fruit syrups. I use them over flannel cakes, like other syrups, and to flavor and sweeten minute or pearl tapioca, or they can be poured over boiled rice and eaten with cream (and sugar if not sweet enough)."

Mrs. W. H. P., New York, asks us how to clean Panama and ordinary straw hats after their last year's service.

Mrs. C. S. W., Pennsylvania, would like to know how to make yeast.

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

7354.—Ladies' waist. Cut in sizes 34 to 46 inches bust measure. One or two materials can be used for this waist.

8032.—Girls' dress. Cut in sizes 6 to 12 years. This dress has a plain waist and three-gored gathered skirt.

8267.—Misses' dress. Cut in sizes 16, 18 and 20 years. The dress has a basque waist and separate two-piece skirt.

7438.—Girls' dress. Cut in sizes 6 to 14 years. The dress has side front closing and a plaited skirt.

8283.—Misses' and ladies' sun bonnets. Cut in one size. Pattern consists of two different styles of bonnets.

7565.—Ladies' apron. Cut in one size. The apron is cut in one piece and slips on over the head.

7353.—Girls' dress. Cut in sizes 2, 4, 6 and 8 years. The dress is in sacque style and separate bloomers are provided in the pattern.

7826.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in three gores.

7392.—Boys' suit. Cut in sizes 2, 4, 6 and 8 years. The blouse opens at the front and the trousers are made with side openings and button to the blouse.

7429.—Ladies' dress. Cut in sizes 34 to 44 inches bust measure. This dress has a plain waist and a three-gored, yoke skirt.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

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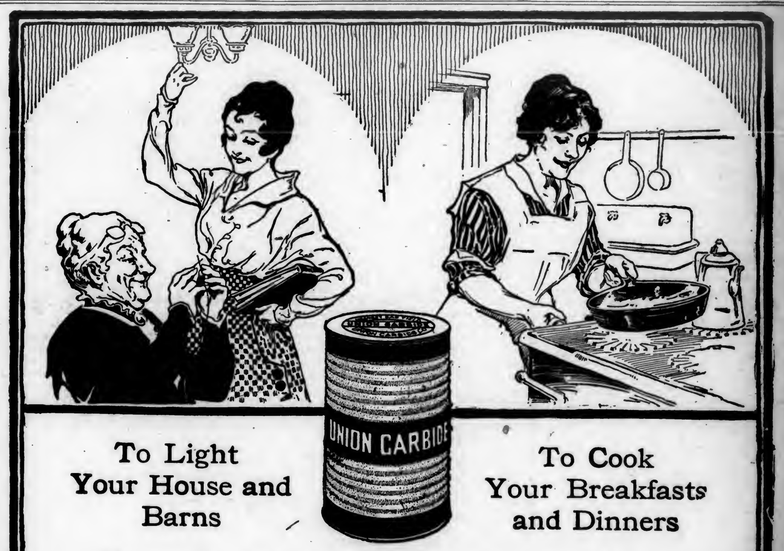

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Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

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CHAPTER IX.

A DAY TO HERSELF.—Continued.

Doctor Ballard shook hands with Persis, nodded casually to Diantha and waited openly for that ingenuous young person to take her departure. As the door closed behind her, he dropped into the arm chair she had vacated, crossed his legs and sighed.

"Miss Persis, I'm up a tree. I want some advice."

"You're welcome to all I've got." Persis, regretting the reserve of her greeting, beamed upon him affectionately.

"Did you ever know a woman to die just because she'd decided that was the proper caper?"

"Trouble?" Persis questioned laconically.

"Lord, no! Everything comfortable. Husband who worships her. As far as I can diagnose the case, it's a sort of homesickness for the pearly gates."

"Kind of as if she'd got disgusted with this world," suggested Persis, with one of her flashes of intuition, "and wanted to get some place where things would be more congenial."

"You've hit it to a T. Now, what I want to know is this, can people keep up that kind of nonsense till they die of it? I've got a patient right now who's lost thirty pounds by it. She won't eat. She won't make an effort. She sits around smiling like an angel off on sick-leave, and the same as tells me I can't do anything for her because she's wanted over the river. Husband's about crazy."

"What's her name?"

Professional caution did not seal Doctor Ballard's lips. In many a sick room, by more than one deathbed, he and this keen-eyed woman had come to know each other with a completeness of understanding which even wedlock does not always bring. "It's Nelson Richard's wife," he said without hesitation, nor did he ask her to respect his confidence.

"Yes, I mistrusted it was Charlotte Richards. Goodness has always been Charlotte's specialty, so to speak, the kind of goodness," Persis explained carefully, "that ain't good for anything in particular. And she's lost thirty pounds?"

"I'd stake my professional reputation," said the doctor vehemently, "that nothing ails that woman except that she thinks Heaven would be a better background for her saintliness than earth. The question is whether she can carry it to the point of suicide."

"Of course she can, if she wants to. I've seen it happen more'n once. The thing to do is to give her a reason for wanting to stay on earth—to look after things." Persis stood motionless, the hand holding the shears extended in a fashion suggesting Lady Macbeth. A spark of light illumined her meditative eyes.

"Well?" said the doctor hopefully. He recognized the signs.

"I won't say that I haven't got an idea, but it'll bear thinking about"—Persis' favorite formula. "I'll try to find time to drop in and see Charlotte."

"She doesn't need cheering, you understand," said the doctor. "She's as cheerful as the devil himself. 'A very bad night, doctor, and the palpitation is worse. This morning my Heavenly home seems very near.'" He mimicked Mrs. Richards' sanctimonious tones with a skill which won even from the abstracted Persis a tribute of a smile.

"No, I won't try to cheer her," she promised. "Stirring up, not cheering up, is what Charlotte needs. And I don't say but what I've got an idea. I can't spare any time for a few days, though, Doctor. I need to do some sewing for myself, and I'm going to do it, come what may."

Vain boast. Persis was washing the dishes after the midday meal when Joel entered the kitchen to announce a caller. "It's the Chase girl, Mildred I think her name is. Anyway, it's the oldest one. And I guess she wants a dress made. She's got a bundle under her arm."

Persis thought this unlikely. "Those Chase girls make their own clothes and do pretty well at it, too. I've often wanted to give 'em a few hints about the shoulder seams, but except for that, they look real shipshape. And anyway, I can't do anything for a week yet. I'm going to attend to my own sewing."

Mildred Chase greeted Persis with a smile so radiant as to give a misleading impression of comeliness. She shook hands with the dressmaker, apparently struggling against an impulse to fall on her neck and kiss her. Persis, whose acquaintance with the girl was comparatively slight, viewed those indications of overmastering affection with perplexity.

Mildred did not wait to be questioned. Her volubility suggested that she could not have withheld information if she had tried.

"Oh, Miss Dale; I've got the greatest news to tell you. You'd never guess in the world. I'm going to be married."

"Well, all I can say is, Mildred, that it's not the most surprising news I ever heard," Persis answered kindly. There was something pleasant in the sight of this flushed, happy young creature who only the other day had been a dull, heavy-eyed girl and soon would be a dull, heavy-eyed wife. It was her little hour, her transient springtime. Persis choked back a sigh.

Mildred was fumbling at the parcel in her lap. "I've always said one thing, that if ever I got married, Miss Dale was going to make my wedding dress. I can sew well enough for ordinary clothes, but a wedding dress is sort of special. That calls for a regular dressmaker, and there ain't but one dressmaker in Clematis that counts."

"When's the wedding to be?" Persis asked. A sudden sinking of the heart foretold the answer.

"It's a week from Saturday. It's so sudden that I can hardly believe it myself. We didn't think we could be married for a year, anyway, but Jim got a raise unexpected. They're going to send him West, and he's bound I shall go when he does."

The parcel was unwrapped at last, its shimmering white contents contrasting with the girl's shabby dress and work-roughened hands, much as the dreams of the wedding-day contrast with the hard realities that follow. Persis look ., hesitated, thought of the filmy gray, just cut and awaiting basting, thought of the hopes that linked the present with her lost girlhood, and ended as she had always ended, by unselfish surrender.

"It's pretty goods," she said, touching it lightly with the tips of her fingers. "And—and there's nothing I like better to make than wedding clothes, my dear."

Certain important details came up for discussion, interrupted frequently by the outgushing of Mildred's artless confidences, to all of which Persis listened patiently. And when the girl took her departure, the impulse which had manifested itself on her arrival proved too strong to resist. She kissed Persis goodby, and Persis returned the kiss.

The rudimentary beginnings of a new gray gown were bundled together and tucked away to wait their fate, while Persis worked till a late hour on Mildred Chase's wedding dress. But tired as she was, with that undercurrent of depression which sometimes most unjustly is the attendant on generous sacrifice, she found time to write a letter to a gentleman named Thompson, in care of the Hollenden Hotel, Cleveland.

"Mr. W. Thompson:

"Dear Sir—Yours received. Nothing could be further from my wish than to keep anything that belongs to somebody else, but you can understand that I don't feel like sending a young lady's letter to the first man who happens to ask for it, especially as Thompson is not what you would call an unusual name. If the young lady who wrote the letter will drop me a line asking me to forward it to you, I'll be happy to oblige her. She won't even have to write anything but her first name, unless she likes. "Yours truly,

"Persis Dale."

"P. S. If the young lady will tell me your full name, when she writes, it will make you a lot surer to get the letter. W. Thompson is a name that fits lots of people."

This epistolary weight off her conscience, Persis went upstairs to bed, and

for the first time in twenty years, she went without a good night to the photograph in the blue plush frame.

CHAPTER X.

SHOULD AULD ACQUAINTANCE BE FORGOT?

Justin Ware arrived in town the day Persis finished mildred's wedding dress. She heard the news from Joel, who had been at the station when the train came in. This was not a happy accident, nor was it intended as a spontaneous welcome to the returning son of Clematis. Year in and year out, except when the state of his health prevented, Joel kept a standing engagement with the fourtwenty train, and few left town or entered it without his knowledge.

"He's filled out considerable, Justin Ware has, but except for that he hasn't changed much. Got a seal ring and silk lining to his overcoat. He ain't what you'd call a flashy dresser, but he lays it all over the young chaps like Thad West who think they're so swell."

Persis listened without comment. She had worked unusually hard that week, and the tired lines of her face acknowledged as much. She set them at defiance in a peculiarly feminine fashion by dressing that evening in the unbecoming henrletta and doing her hair in the plainest, most severe fashion. At half past seven Thomas Hardin came.

"That Ware feller is going to put up at the Clematis House. He's a big bug all right. Wanted a private sitting-room, he did," Thomas chuckled. "Guess he's the sort that can't remember back further than he feels like doing. Old man Ware's private setting-room was a keg o' nails in Sol Peter's store. Nobody else ever thought of taking that particular keg. Stood right back of the stove, I remember. You never caught old man Ware putting on any airs."

"Justin and me was always the best of friends," said Joel, puffing out his thin chest pompously, as if he felt himself vicariously honored by Mr. Ware's tendency to exclusiveness. "We took a shine to each other when we were little shavers. As Addison says:

"'Great souls by instinct to each other turn
Demand alliance, and in friendship burn!'

"Yes, sir, it was a real David and Jonathan affair. That's his picture upon the mantel now."

Thomas Hardin turned his head. "'Tis so," he assented. "Hasn't changed such an all-fired lot only now he looks as if he'd cut his wisdom teeth quite a spell back." His gaze wandered to Persis, silently basting the breadths of a gray crepe skirt. "You must have been acquainted with him, too," he said politely, striving to include her in the conversation.

"Yes, I knew him." Persis did not lift her eyes.

"All the family knew Justin," Joel explained. "Him and me being such friends, he was in and out of the house same as if he belonged here. I didn't speak to him today, because I never was one to cheapen myself by doing my visiting on a depot platform. We'll have plenty of chances to talk over old times.

"'There is nothing can equal the tender hours
When life is first in bloom.'"

It seemed to Persis during the next two days that wherever she turned she heard of Justin Ware. There was no escaping the subject. Without question Justin's business methods were the acme of up-to-date effectiveness. An outbreak of war could hardly have stirred the town to more seething excitement than the advent of this well-dressed young man with his self-confident air and full pocketbook. Clematis was apple-mad. The Apple of Eden Investment Company and its optimistic promises eclipsed in interest the combined fascinations of politics and scandal. The groups in those local lounging-places, which, in rural communities are the legitimate successors of the Roman forum, passed over prospective congressional legislation and Annabel Sinclair's latest escapade in favor of apple orchards. The statistics which fell so convincingly from Ware's lips were quoted, derided, defended, denied. The hardest argument the objectors had to encounter was Ware himself. The atmosphere of prosperity surrounding him, his air of familiarity with luxury, could not be offset by logic. The program of the Clematis Woman's Club was fairly swamped by the eagerness of the members to question Mrs. Hornblower as to the possibilities of profit in this form of investment. Persis, who had come to the meeting late, went away early while the discussion was at its height and missed a paper by Gladys Wells entitled, *No Knot at the End of the Thread.*

(Continued next issue.)

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FOR SALE 406 acres, good fair buildings, nice lot of timber. Must be sold owing to old age. $4000. Cornell Company, Great Barrington, Mass.

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This column is for our Subscribers only—no Real Estate Agents, Dealers or Manufacturers. 3 cents per word; no advertisement less than 60 cents.

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Some Good Advice, Right off the Ice, for Dodging Foodstuff's Awful Price.

W. E. VAPLON.

It makes the grocer laugh out loud to see the foolish, hungry crowd step up and buy his tin can beans with money fished from faded jeans. He smiles to see how keen they be to buy the stuff that's often tough, and stingy, stale, just good enough for thriftless folks to buy and eat; but not as good by fourteen miles as stuff that mother canned in piles. We've left the good old-fashioned way of fixing for a rainy day by canning corn and peas and beets and other things that's good for eats. We used to like to turn the soil, we used to exercise in toil, to pull the weeds on hands and knees and feed the chickens and the bees. To plant the radishes and peas was our delight, but now we scoff at honest toil and play at golf or jump into our rusty car and hit the highway with a jar; we spend our wages to buy gas instead of raising garden sass. No longer is the cellar filled with kraut and lard, and pickles dilled, with spuds and eggs, preserves and jam, and bacon, sausage, pork and ham. The moral is not hard to find, unless you are both deaf and blind. Just buy your wife some garden seeds, some modern tools to dig the weeds. Send to your college for the rules for canning stuff from squash to mules.

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Olive-khaki, black or yellow $4.00

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Western Canada Farmers Require 50,000 American Farm Laborers AT ONCE!

Urgent demand sent out for farm help by the Government of Canada. Good wages. Steady employment. Low railway fares. Pleasant surroundings. Comfortable homes. No Compulsory Military Service. Farm hands from the United States are absolutely guaranteed against Conscription. This advertisement is to secure farm help to replace Canadian farmers who have enlisted for the war.

A splendid opportunity for the young man to investigate Western Canada's agricultural offerings, and to do so at no expense.

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For particulars as to railway rates and districts where labor is required or other information regarding Western Canada, apply to

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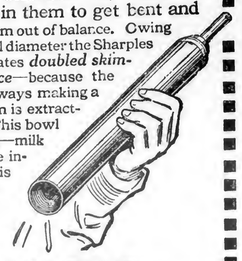
The Sharples Bowl is easy to clean and hard to hurt. It has *no discs!* It's a plain strong tube—simply run a brush through it, and it's clean. Sharples bowls in use 12 or 15 years are still in perfect balance—for there is nothing in them to get bent and throw them out of balance. Owing to its small diameter the Sharples Bowl creates *doubled skimming force*—because the milk is always making a sharp turn; thus the cream is extracted more thoroughly. This bowl is also remarkably long—milk travels further while the intense skimming force is working on it. But its greatest feature is that it will skim clean regardless of how fast or slow you turn it.



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LIVE STOCK & DAIRY

Edited by W. H. TOMHAVE

Breeds of Sheep

We will now discuss the breeds of sheep usually classed as "coarse" or "long wool," and commonly found in the United States and Canada. There are a few other breeds belonging to this class, but they are found in such small numbers that it will not be necessary to deal with them at this time.

LEICESTER.

This breed developed in the county of this name in England. Robt. Bakewell, who is regarded as one of the early prominent breeders of England, was instrumental in their origin and development. His object was to get sheep that not only produced a long fleece, but would also fatten for market at an early age. They held a very conspicuous place among the breeds of sheep in England for many years, and were used to some extent in the development of some of the other breeds. They have never gained much of a foothold in America. It is said that representatives of this breed reached America during Colonial days. Importations have been made from time to time and they are found largely in the Northern States and Canada.

This breed is hornless, with a rather large square body and somewhat upstanding. The legs are bare and the face is free from wool with the exception of a small amount of wool in the form of a topknot on the poll. They are especially adapted to use in crossing with some of the smaller breeds for early maturing lambs. The American Leicester Breeders' Association is the official organ of the breed, with offices located at Cameron, Illinois.

LINCOLN.

This breed also originated in England at a later period than the Leicester. It is usually supposed that the present Lincoln breed is the result of crossing the old Lincoln type with the Leicester. Very little is known about the exact origin of the old Lincoln type, but no doubt it developed as the native sheep of that section of England.

This breed was first imported into the United States about 1825, and other importations have been made from time to time. They have never gained a strong foothold in the United States. It is found largely in England, South America and Australia.

Both males and females are large, hornless and somewhat upstanding. The wool is white and characterized by long, lustrous fiber. The color of the face may be slightly grayish or a darker shade along the nose. As a rule, the Lincolns are very broad and level over the back. In size they rank large, rams weighing from 300 to 400 pounds when matured, while ewes will range from 225 to 300 pounds. They are well adapted to production of market lambs, especially since the demand for heavy mutton is decreasing. They are not regarded as ranking high as grazing sheep, but will do better when confined to the feed lot. They produce a fleece of exceptionally long staple, possibly the longest of any of our modern breeds.

The National American Lincoln Sheep Breeders' Association was organized in 1891. The office of the secretary of this association is located at Charlotte, Mich.

COTSWOLD.

This breed of sheep originated in southwestern England in the county of Gloucester. The breed has been found in this section for several generations and is one of the oldest breeds in the British Empire. Cotswold sheep were first imported into the United States about 1832 when a few were brought into New York State. Importations have been made at frequent intervals and the breed is now quite well distributed over the Eastern and Central United States.

As a breed the sheep are hornless, usually white about the face, but may be slightly mixed. They have a tendency to a Roman nose and have locks of wool coming over the face extending well down to the nose. The fleece is long and frequently quite curly in long locks, and when long has a tendency to part along the back and hang down over the sides.

In size they rank a little smaller than the Lincoln. Rams weigh from 250 to 300 pounds, while ewes will range from 200 to 250 pounds. The breed is well adapted to average farm conditions, but not so well suited as some of the medium breeds. They are not as good grazers on rough land as the fine wooled or the medium size breeds. When pasture is supplied in abundance they make good use of forage crops.

The American Cotswold Sheep Association was organized in 1878. It has published a number of volumes of the flock registry since that time. The secretary of the association is located at Waukesha, Wisconsin.

Breaking Heifers to Milk

MRS. JENNIE WILLIS.

I wish to tell you my method of training young milch cows to stand quiet while being milked. As I had the milking to do I also had the young cows to "break" and we never had a "kicker." First, last and all the time, kindness is the rule. In warm weather, when flies were not too bad, I did my milking at the pasture bars, all the cattle together, contented and happy. In one corner of the barnyard I had a narrow stall built, only wide and long enough for a cow. At the front I have a wooden stanchion, also a bar at back, so if bossy backs she will strike the bar and stop. On the right side, opposite her kicking leg, I set a heavy post in the ground and to this nailed a board for right side of pen, just high enough not to interfere while milking, for you sit outside while at this job. I have a strong rope to fasten hoof to post. I do this so it will be impossible to get it loose while bossy tries her best to kick.

I coax the cow into the pen with a bucket of bran mash, or anything a cow is fond of. If you have fed and tempted the young heifers to come to you, and made pets of them, there will not be much trouble getting them into the milking stall. Never try the first milking without securing the cow in the stall, as they must never be allowed to kick or walk away while being milked. When in winter quarters fasten ring to floor in a convenient place, to fasten leg to. The cows learn to know your voice, and if given a small ear of corn every time they come from the pasture to be milked, will not need a dog to bring them home.

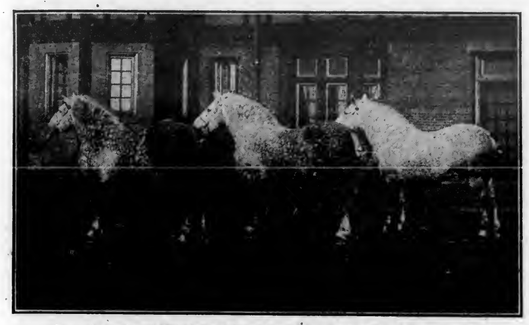
Maryland.

Experiments at Pennsylvania State College show that the grain cost of a pound of pork is at least 2 cents cheaper when pigs are run on pasture and fed grain than when fed in a dry lot.

Getting Horses in Condition

W. H. TOMHAVE

The time for opening of spring work on the farm is here and it is a desirable practice to get the horses in shape for their share of the work. If the horses have been standing idle a large part of the time during the winter and have been fed largely on roughage they should be accustomed to work and their ration changed so as to contain more grain. There will be quite a temptation to keep down the amount of grain that is fed, on account of the prevailing price, while hay is quite cheap. It is good economy to keep down the feed bill, but it should not be carried so far that it interferes with the usefulness of the horse. If the farm horses seem to lack condition and thrift at this time it will be well to add about a pound of linseed oil meal to the ration each day. This will regulate the system and develop a glossy coat and act like a "spring tonic."



First, Second and Third Aged Percheron Stallions at Recent International

The horses will be soft when they are first put to work and it will be necessary to exercise judgment in the amount of work they are required to perform. They will naturally sweat a great deal, which will mean that there will be an accumulation of dirt and foreign matter in the hair. This will cause an irritation if it is not properly removed. It is a good plan to remove this as soon as possible after it has dried. This means that the horses should be brushed and curried during the evening instead of waiting until the next morning. Proper brushing and currying is very important, as it keeps the horses in good condition and really helps to save on the feed bill.

The harness must be looked after and put in shape for spring work. It should be thoroughly overhauled and all weak parts strengthened and broken parts replaced. This will avoid trouble later in the year and save many delays when there is a rush of work.

The proper amount of feed for the farm horse at different types of work is of considerable interest as well as importance. The amount of work performed should govern the amount of grain and roughage fed daily. The feed supplied must be used for maintenance and to supply energy for work.

A general rule to follow is to feed on the basis of live weight. While it is not an exact method to follow it does provide a general guide. Horses doing light work should be allowed from ¾ to 1 pound of grain and 1¼ to 1½ pounds of hay for every 100 pounds of live weight daily. Medium work, 1 to 1¼ pounds grain and 1 to 1¼ pounds of hay for each 100 pounds live weight daily. Heavy work, 1¼ to 1½ pounds of grain and ¾ to 1 pound of hay for each 100 pounds of live weight. The amount of grain increases with the severity of the work and the amount of hay decreases. Individual horses will require different amounts and the feed must be guaged to suit the individual cases. This is a good rule to follow and may mean the saving of considerable feed.

Raising the Dairy Calf

T. HENRY WHITE

What are you going to do with the new heifer calves this spring? Time has passed when they are just knocked in the head in order to dispose of them. They will be worth considerable for veal, yes, a good, big, fat one around here will bring almost as much (about $35, 16 cents a pound live weight) as fresh cows did at one time. The temptation is strong to sell them, but we always raise some to keep up our herd. Possibly we are fortunate in this respect in having warm skimmed milk for them, as we separate after each milking and sell the cream to the local confectioner.

While the separator is still buzzing we carry to the barn four 8-quart buckets, each with enough milk for one calf, have the calves drink it and get back to the separator house before the machine runs down from the momentum it has obtained while skimming. The calves are always eager for their portion and if care is taken not to overfeed them and to always keep the buckets clean and sweet they thrive wonderfully on the skimmed milk. Often when we do not have enough milk to go around we add some water and one of the well-known calf meals. In fact, we give them a little of the dry meal as soon as they will take it. After they drink the milk we take a little of the meal in our hand and rub it on their wet lips, which gives them a taste and they soon find out where the box is.

Each of the state experiment stations has its special formula for raising calves and your station will be glad to send you this information if you ask for it. We have had good results with a mixture, equal parts by weight, of corn meal, wheat bran and the calf meal.

For those who do not have skimmed milk and cannot afford to use the whole milk it has been demonstrated lots of times that calves can be successfully raised on milk substitutes. The method is not quite as easy as with milk, but if reasonable care is given the final results are about the same.

Pennsylvania.

Feed Pigs by Themselves

Little pigs will have a better chance to eat grain if means are provided for feeding them separately from the sow. A pen built close to the feeding quarters, with a hole large enough to permit the pigs to pass through, will encourage the eating of grain much sooner than otherwise. In this case the pigs may be more quickly weaned.—J. W. Wulchet, College of Agriculture.

Cheap Breeding Stock is Expensive

The unprecedented demand for pure-bred live stock will sooner or later result in the marketing of many animals eligible to registry, which are inferior as individuals and which may prove poor breeders. S. T. Simpson of the Missouri College of Agriculture reminds buyers that the present high values afford all the better reason for investing in only good breeding animals even though they appear high in price. In this way only can the present high standard be maintained and the scrub pure-bred finally eliminated.

The use of the registered scrub can but discourage the cause of pure-bred sires and better live stock. The breeder who markets such individuals will ultimately suffer the criticism of those who know good live stock, and finally be discriminated against in buying and sell-

DE LAVAL

The First, the Best Known and the Greatest

CREAM SEPARATOR

Better Now Than Ever Before

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The first belt driven, the first steam turbine driven, the first of every kind of hand turnable, the first disc bowl, the first blade bowl, the first bottom or suction feed, the first split-wing feed, the first feed-through-the discs, the first self-centering bowl, the first automatically oiled—all these and a hundred other features of separator development and improvement have been conceived by De Laval inventors and perfected by the De Laval Company, most of them to be cast aside for something still better in the ever onward advance of De Laval construction.

The New 1917 De Laval

And now, in the De Laval machines for 1917, a number of new and still further improvements have been made, which make the De Laval machines of today much better in many respects than they have ever been before.

Their capacities are greater per dollar of cost; they skim cleaner under the more difficult conditions of separator use; they are equipped with the most improved speed regulator, thus insuring the proper speed necessary for complete separation; they are even better lubricated, and the bowl construction is even more sanitary than ever.

In other words, superior as the De Laval machines have always been to all would-be competitors and utilizers of abandoned De Laval features, the De Laval machines of 1917 are improved and superior in every way to all previous types and models of De Laval construction.

All these improvements and new features are described and explained in the new 1917 De Laval catalog now ready for mailing, but some of them are difficult to describe and make fully understood by words.

Be Sure to See a New De Laval

The new De Laval machines themselves best explain their new and superior features, and their use does this more completely and convincingly than even an examination of them. Every local agent is glad to afford opportunity for examination, and better still, for home test of a new De Laval machine.

But the demand for the new machines is a month ahead of the possible supply under the present difficult conditions of manufacture and freight distribution. More De Laval machines by half have been made in 1917 than ever before, but the De Laval Works is now ten thousand machines behind actual orders, and the demand is ever increasing.

Hence, the importance of securing a machine quickly if your local dealer happens to have one, and of ordering well ahead if he does not. And likewise, the importance of waiting patiently a little for a machine if need be.

A new De Laval catalog will be gladly sent on request, and if you don't know your nearest local agent please simply address the nearest De Laval main office as below.

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165 Broad, New York 29 E. Madison St., Chicago
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

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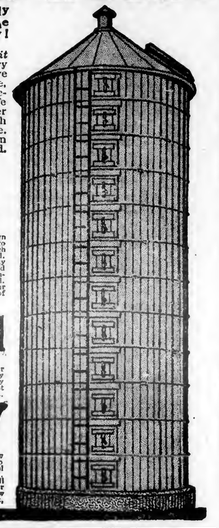

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Our silos are shipped packed and crated to reach you in perfect condition. Our free plans and new method of construction enable you to put your silo up quickly and easily without the slightest difficulty. Read in back what other owners say about this. Why pay high prices for the ordinary silo or for one made of inferior material, best design and finest construction at a price that saves you so much.

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Just send us your name for our book giving all facts and information about our new methods. Tell us how many cows you keep and let us quote you on the size silo you need. We will hold your silo until you want it shipped and allow you to cancel order if you can do better before date of shipment. At least write for our book. This costs you only a penny and may save you $50, $100, or more. Prices of all materials are going up every day. Present low prices can only remain in force for a short time. Write now for book and reserve the present low prices. Do this now while the iron is hot. Address A. J. Stevens, President, Stevens Tank and Tower Co., 24 Center Street, Auburn, Maine.

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Our new patented staple and felt reinforcing device gives a *larger, firmer hold* than is possible by any other form of attachment—hence hooks do not pull off easily. This adds to life of pad. This form of attachment is

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More prolific sows, better mothers, quicker growth from cheaper feeds—that's why Jersey Reds pay best. Book of FACTS, FREE.

375 lbs. in 9 months

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American FULLY GUARANTEED CREAM SEPARATOR

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AMERICAN SEPARATOR CO. Box 3077 Bainbridge, N. Y.

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Grain Rations for Lambs

A good grain ration for lambs, recommended by the Ohio Experiment Station, just beginning to eat, is ground corn, 1 part; crushed oats, 1 part; linseed oil meal, 1 part, and wheat bran, 2 parts. Wheat bran is very essential in this ration, and the shepherd should always see that it is present. A grain ration consisting of 2 pounds of wheat bran, 1 pound of oats (crushed oats being preferred), 1 pound of finely ground corn meal, and ½ pound of oil meal has proved to be an excellent grain ration for young lambs. It has also been found that a grain mixture of oil meal and corn meal has given better results than a mixture of cottonseed meal and corn meal.

Queries Answered

Is This Tuberculosis?—W. A. S., North Carolina, writes: "We have a nice healthy cow and she always gives good milk. There never were any lumps or strings in the milk, but her udder is now full of hard knots, and it hurts her when milking or calf is sucking. She is fresh now—has a fine calf. The knots have been there several months. What causes the knots and how can we get rid of them?"

From all appearances the trouble with the cow's udder is that she has developed tuberculosis of the udder. This is indicated by the fact that the milk does not seem to be affected, and that the hard lumps in the udder are not the result of recent straining. I would advise consulting a competent veterinarian, to have him diagnose the trouble. If it is tuberculosis it is dangerous to use the milk from such a cow.

Trouble Getting Butter.—Mrs. D. E. E., Tennessee, writes us: "We have six cows that have been giving milk since April and May, 1916, and all will be fresh again in May and June, 1917. For the past four years we have been arranging for them to freshen in the spring, as we need a greater supply of milk in the summer. We feed them cotton seed meal, bran, hay, and now and then a feed of cut-up corn. They are in good condition, well and hearty in every way. Of late we can make no butter. We strain the milk in gallon jars until the cream rises, then pour off in a big jar to clabber; then well clabbered we churn in a barrel churn. Until the past month we have made a quantity of butter. Now when we churn it foams as though it was too cold. We keep resting it with hot water until it is warm and still it foams and the butter does not seem to come, and when it does it don't gather. Once in a while it will come under these conditions and make a quantity of butter. What do you suppose is our difficulty?"

The difficulty which you are having in churning your cream is due to the fact that practically all of your cows are late in lactation period. When cows are late in lactation period they produce fat that has a higher melting point than the fat has earlier in the lactation period, and, therefore, the individual fat globules unite with greater difficulty. The fact that you have no succulent feed, and are feeding considerable cotton seed meal, adds to your troubles, as both of these factors have a tendency to increase the melting point of the butter fat. Further, the cream is undoubtedly not very rich, which gives the fat globules more milk serum to float in and, therefore, makes it more difficult for them to unite. To overcome your difficulty I should advise you to reduce the amount of cotton seed meal fed, try to skim your cream as thick as possible, and increase your churning temperature. You cannot determine the proper churning temperature without the constant use of a thermometer. There are cases on record

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where under similar circumstances it has been necessary to have a churning temperature of as high as from 70 to 75 degrees. The proper temperature can only be found by experience. In your case you should not add hot water to your cream in order to raise the temperature, as that further dilutes the cream and therefore makes churning more difficult.—Fred Rasmussen, Pennsylvania State College.

Poland-China Swine.—S. E. G., Kentucky, asks us: "When and how were the Spotted Poland-China swine developed? Is there more than one type of the Black Poland-Chinas? What influence does a boar have on the number of pigs in a litter?"

There is no definite data concerning the exact time when the large Spotted Poland-China was developed. They originated from the Poland-Chinas which showed an undue amount of white on various parts of the body, and were not regarded as being suitable by the majority of the breeders.

The standard Poland-Chinas were developed in the Miami Valley of Ohio. The exact origin of the breed is not clearly understood, but it is generally assumed that several types of swine found in that section were used in developing them. There are two types, the large and the small, the only difference being that one has been bred for greater size and bone, whereas the other has been bred more for compactness of form and early maturity. Both are recorded in the same herd book and have their share of admirers. They both have drooping ears.

It is generally assumed that the boar exercises no direct influence on the size of the litter, provided he is in good condition and has not served too many sows in a short period of time. He exercises his influence on the size of the litter from future generations in the same manner as the herd bull exercises a certain influence on the milk production of his offspring. The tendency to produce large litters is transmitted through inheritance from the boar to the females of the litter. It is generally considered that it is desirable to select both boars and sows from large litters.

Lump Jaw.—C. B. A., New York, writes: "I have two cattle that have a lump jaw. Is there a cure for this? Would it be safe to market these beeves or to use any milk from a cow thus affected? Is it contagious to other cows?"

The two cattle are affected with lump jaw, which can be cured in its early stages. If the fleshy portions are affected, it is possible to remove them by a surgical operation. This should be done by a competent veterinarian, as there are several large blood vessels near the place where the infection is usually found. If these are cut, there is danger of losing the animal through loss of blood. Lump jaw can also be cured after the bone is affected, but is more difficult, and should be attempted only in case of very valuable animals. The method of treatment is that of giving potassium iodide and painting the exterior with iodine. This medicine must be given in such heavy doses as to make it very expensive, and at the same time is apt to cause abortion in the case of pregnant animals, and in the case of milch cows will dry them up completely.

The cattle may be sold for food, providing they go to a market where there is a competent veterinarian inspector, who will pass on the stage of the disease. The disease may be transmitted from one animal to another through infection. The germs from the lumpy portion that is discharging will adhere to mangers and other equipment of the barn, where they may come in contact with cuts or bruises on other cattle, to be transmitted in this manner.

New or Old Process Oil Meal?—J. S. G., Missouri, in a letter to us says: "I want to use ground linseed oil cake to feed to horses, cows and chickens. How can I tell old process meal from the new? Is the new process meal safe and as good for feed?"

In order to determine if the oil meal is old or new process, take a small amount and pulverize it. Put a level teaspoonful of it into a tumbler and add two tablespoonfuls of boiling hot water to the meal. Stir it thoroughly and leave it to settle. If it is the new process meal, it will settle in about an hour and about half of the water on top will be left clear. If it is the old process oil meal the mixture will remain jelly-like. There is practically no difference in the feeding value of the two types of oil meal, and both can be fed with safety to all classes of live stock.

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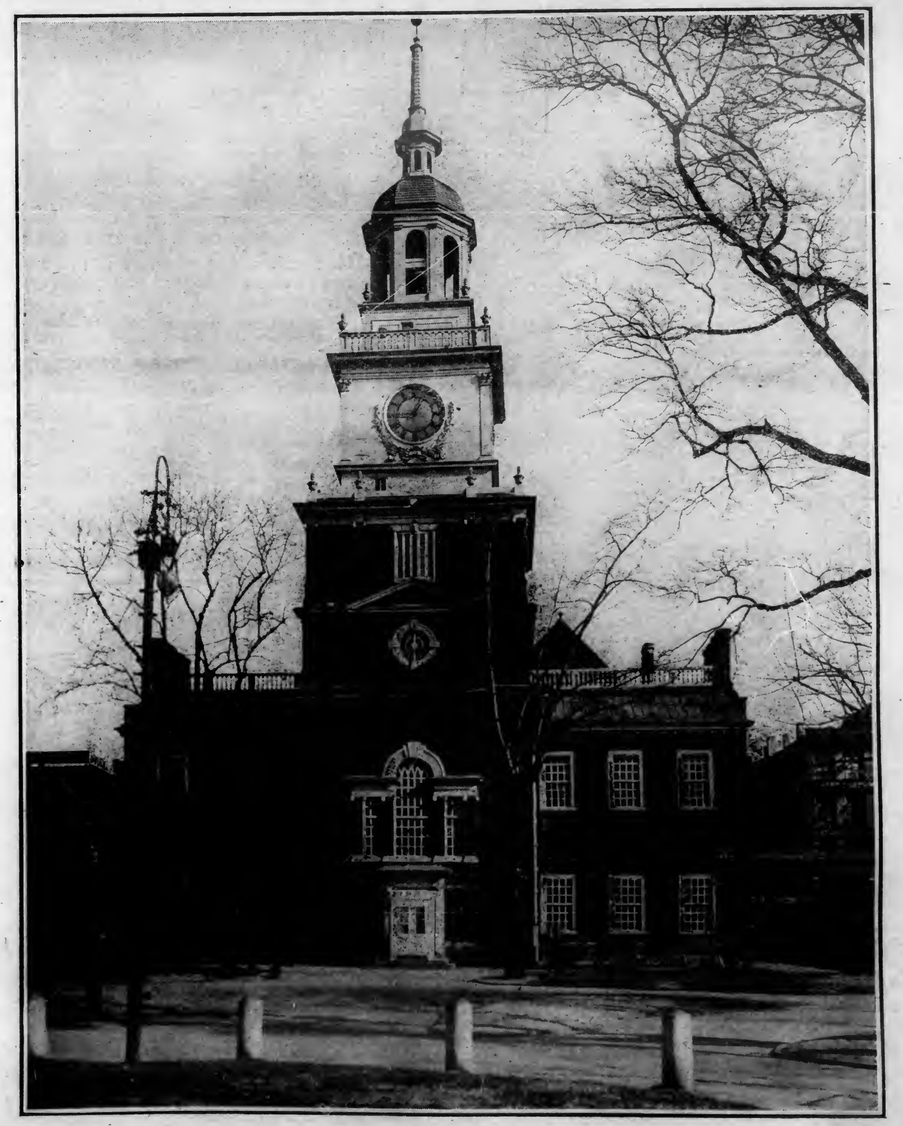

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Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

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CHAPTER X.

SHOULD AULD ACQUAINTANCE BE FORGOT?

Continued.

Persis Dale was not lacking in self-respect. But for twenty years her self-respect had been identical with her loyalty. She could not fancy the one arrayed against the other. She clung desperately to the hope that Justin would explain. For half her lifetime she had found excuses for his silence, and the habit was too strong to be smothered over night. But even her prejudiced tenderness recognized the insufficiency of the grounds on which she had exonerated the lover of her girlhood from blame. It was no longer possible to judge his faith by her own, scorning all doubt of him as she would have scorned the grossest of temptations. She could have borne the news of his death without outward evidence of emotion, but this bewilderment and uncertainty taxed her strength almost to the breaking point. Through the days, with the help of her work, she kept herself so well in hand as almost to believe the victory was lasting. But as the dusk settled down, the old questioning began. Would he come? Could he stay away longer? He had been in town five days without seeing her, six days, seven. Against her will and her judgment, she found herself waiting, listening, hoping. Footsteps echoed outside, lagging feet, reluctant to leave comfort behind, swift feet, hurrying to keep some tryst with joy. She heard them pass and repass while her pulses leaped with a hope she knew to be folly, and then steadied to the old monotonous beat. She grew to hate the face of the tall clock in the corner ticking off the seconds glibly, leering as the time grew late, as if it alone knew her secret and mocked her disappointment. Thomas Hardin, coming in on one or two occasions, had exclaimed at the sight of her colorless face. Ordinarily she knew his step, but now her strained nerves misinterpreted the most familiar sights and sounds.

If the days were hard, the nights were torture. Even that poor, tormenting, futile hope that left her sick and shaken was better than hopelessness. There were no stars in the darkness that brooded over her heart after the sun went down. As she lay with clenched hands, counting the ten thousand woolly sheep whose agility in overleaping an obstructive wall is for some mysterious reason assumed to be soporific in its influence, she was conscious of a sort of terror of the thoughts lurking in ambush, ready to spring out upon her if she were off her guard for an instant. It was useless to tell herself that she was no poorer than before, that nothing had changed. In her heart she knew better. She had worked on through the gray years, facing a colorless future, without a word from her one-time lover, to tell her that he lived or ever thought of her, and yet a dream, too vague and illusory to be named hope, had been her stay and solace. Now as she stared wide-eyed into the dark, she asked herself what was left.

It was no wonder that the gray crepe grew apace. For the first time in her well-disciplined life, Persis gave up the struggle with refractory nerves, left her bed night after night and sewed till daybreak. For whatever might fail, her work was left, that grim consoler, who, masking benignity by a scowl, has kept ten million hearts from breaking.

The gown was finished at daybreak, one bright October morning, and that evening Persis tried it on, in the apathetic mood that mercifully relieves tense feelings when the limit of endurance has been reached. It was late, according to Clematis standards. For almost twenty-four hours that dreadful, unbeaten hopefulness would be quiescent. Thomas Hardin had come and gone. Joel was in bed. Persis Dale put on her new gray gown and scrutinized herself in the mirror. She had lost interest in her personal appearance, but her professional instinct told her that the dress was a success.

"It would be real becoming if my hair wasn't strained back so. A dress can't do much for you when you look like a skinned rabbit, all on account of your hair." She recalled the coiffure in which Annabel Sinclair had presented herself the previous day, and loosening the coil of her hair, as glossy and abundant as ever, she imitated with a skill which surprised herself, Annabel's version of the latest mode. She was studying the effect when some one knocked.

It was quarter of nine. It occurred to Persis that some one of her neighbors must be ill. There seemed no other explanation for such a summons at that hour. She crossed the room hurriedly and opened the door.

A man stood outside, and after a moment of hesitation he entered, putting out his hand.

"Good evening, Miss Dale. I hope you haven't forgotten me."

Persis recalled afterward with the amazement self-discovery so frequently entails, that the one thought for which her mind had room was an intense thankfulness that she had arrayed herself in the gray dress. That emotion was infinitely removed from vanity. The new gown had become an armor. Except for its aid she would have been at too great a disadvantage in this encounter.

The hand she extended was quite steady. "Of course I haven't forgotten you, Justin. Won't you sit down?"

Justin pulled up a chair for her before seating himself. He had an impulse to gain time, the result of being taken by surprise. This was not quite the Persis he had expected to find. In recalling that early affair of the heart with the indulgent smile its absurdity demanded, Justin's imagination had drawn an unflattering sketch of the object of his boyish devotion. But his first glance told him that Persis Dale was still a good-looking woman, with an unmistakable dignity of manner, and, surprising as it seemed, some commendable ideas as to dress. His eyes dwelt on her with approval. He really wished he had called earlier.

They talked for a little of the most obvious matters as old friends will, meeting after many years. He was less at ease than she, and asked her permission to smoke, finding the manipulation of his cigarette a help in concealing if not overcoming his unwonted sense of embarrassment. The talk turned presently to common acquaintances, dangerous ground, he realized, though he asked himself what other interest they had in common. Persis was able to give him considerable information concerning friends, some of whose very names he had forgotten. She left him to direct the conversation as he would. He reflected that she was more quiet than he would have expected to find her, more reserved, but by no means a woman to laugh at. That had been his mistake.

He was lighting his second cigarette when he caught sight of the plush-framed photograph. He stared till his match went out, and rising, crossed the room. As he scrutinized the likeness of his callow self, he gave way to laughter, his first spontaneous expression of feeling since he entered the room.

"Upon my word, Persis," he cried gaily, using her name for the first time and seemingly unconscious that he had done so. "It's been extremely charitable of you to give this jay house room for so long." He scratched another match, lit his cigarette and laughed again. "I wonder if I could have been such an unconscionable donkey as I looked."

Persis moved slightly in her chair but failed to reassure him on that point.

"We really wore our hair in that style, didn't we?" he continued humorously. "And yet the thunderbolts spared us. And that classy thing in ties! By jove! Persis, you'll have to make me a present of this for old times' sake. This pretty picture of smiling innocence gets on my nerves. I shall feel easier when it has been consigned to the flames."

From the arm chair Persis spoke. Her voice was low and distinct.

"Let that picture alone."

The accent of authority was unmistakable. Justin Ware turned, and stood transfixed by what he saw. Persis' cheeks were crimson, her eyes ablaze. His astonishment over the discovery that she was angry, blended with sur-

(Continued on page 171)

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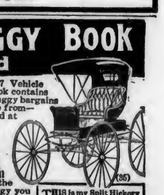

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GEESE, GRASS AND GREENBACKS

THEO. F. JAGER

WHILE it is true that this is the age of specialties and intensive application to one branch or undertaking, because one can accomplish, in that case, so much more, and that much more so much better, it is also well known that side lines, if they fill out, without much expense or labor, the main issue, are deserving of our support and attention. This is true in every business and also in farming, the real backbone of all business in any country.

As we work our farm, taking account of all our opportunities, we shall advance and reach perfection, which spells success and contentment. The farmer who turns every blade of grass into meat and profit, and again manages to utilize the waste produced by growing the meat, for soil improvement, is the right and royal man. A woman in the Mississippi Valley, left to her own resources, found geese, a former side line, the most profitable fowl she could handle. She said: "If you wish to turn grass into greenbacks, raise geese." Her experience with Toulouse geese, the large gray fellows, covering a lifetime, corroborated what any one can behold and learn in the central European countries, where geese are seen by hundreds in every village and on every farm, where even artisans and laborers, paying rent, and having no land, find it profitable to raise a few, so that they may have a roast for the winter holidays.

We are yet a young nation. We still have to learn. I wish we had available statistics to show what Bohemia, Bulgaria and Poland realize out of geese. It must be a tremendous sum, realized out of waste grass along the highways and rough fields. Geese are seen everywhere.

Let us all make up our minds and try a few geese. The trial will convince us of their frugality and value, and we shall keep more and more of them until we, too, shall have as many head per community as they now have in most sections of Europe. Let us go after the old saying that "a goose eats everything in front of it, and poisons everything behind it," and behold its fallacy. While it is true that the excrement of the goose is not of the same high fertilizing value as that of hens, it is not a poison to land or cattle using the pasture. The old saying has its origin elsewhere. Geese bite close, where they have to bite close in order to get anything. They bite even closer than sheep. Hence where cattle, sheep and geese have been kept in one pasture, in the rotation as mentioned, there will be nothing left for cattle or even sheep to gather after the geese have finished. If the creator of that old saying had allowed the pasture to rest for a while he would have noted that the geese had not poisoned it. Frugal as a goose is, she must fill her crop, and if we confine her to a small place, so that she must bite close and often to sustain herself, she will, of course, kill plant life in the course of time, just as all other animals would.

I have seen many large barnyards overgrown with grass and weeds, and many lanes leading up to the homesteads, riotous in plant growth that went to waste, which would have made ideal goose pasturing grounds. A small flock will sustain itself on any farm from just the waste greens that grow up along fences and roads. Again, how much grain is lost every year by falling out before and at the harvest. If we have geese, they will gather it, to the betterment of our pocketbook, on a larger scale and farther from the barnyards, than hens possibly can.

The goose is a vegetarian. She does not require, nor even care for, beef scraps, the highest priced ingredient in our hen and duck ration. Geese will do well on greens gathered at will during the growing season, and rounded out by grains of whatever kind are cheapest at the time, will put on weight in the fall quicker and better than any fowl, because they are by nature of a quiet character encouraging quick fattening. I have raised and handled the three largest breeds of geese, Toulouse, the gray colored; Embdens, the large white geese, and Africans, a rather rare, knobbed goose, gray in color. There is not much difference between them in the size of the matured bird, all weighing from 18 to 24 pounds for old ganders, and from 16 to 20 pounds for matured geese. Older specimens weighing at times as much as 36 pounds are a rarity. For breeding, such are, as a rule, unfit. It is the full sized active bird of about 22 pounds that mates well with females a few pounds less.

White Chinese Geese

Cost Little to Raise and Seldom a Surplus on the Market

Toulouse are better layers than Embdens; at least that is my experience. They will lay as many as fifty or more eggs in a season to the forty odd of the latter. Africans do well if they bring it to forty. Geese love to make their nests in out-of-the-way places, somewhat hidden. I found that barrels, laid sideways on the ground, filled almost full with straw, and covered out of sight with the trimmings from the orchard, just enough room being left for the goose to enter, are ideal nests. If these barrels are fixed up in the fall the geese select their nests early in the spring and we can often find their first eggs there before the last snow has melted. A common china egg should be in the nest to tempt the layers. Gather the eggs as soon as laid, to prevent chilling. The geese will lay early in the morning or very late at night, and cover the eggs with loose straw. By taking the eggs away until enough are on hand to set them under hens, we break up the goose from her first attempt to sit, and compel her to keep on laying. The eggs of the second cluster I leave in the nest and remove the china egg when she has laid five. After this I do not trouble any more with her until she comes out with her brood.

The eggs of the first cluster are set under hens, three eggs to a hen, and all are set at the same time. When these hatch the goslings are given to one or two of the largest and most docile mothers. As a rule, the hatching—from 30 to 32 days—goes on without my assistance, but should some eggs be dragging behind, with the little bill of the gosling peeping out of a small break in the shell without further progress, I take the eggs and wrap them in a piece of moist flannel, each egg separately, and lay them in a basket and set the whole on top of the kitchen range warming closet. If at the end of another day help must be given in taking away small parts of the shell, I do so, being very careful, however, not to start a bleeding of the inner skin next to the shell. If the goslings are weak—they generally are right smart after hatching—I allow them to rest, warmly bedded on some cotton batting. They get the use of their legs within a few days. Undue haste in liberating goslings from the shell often causes a spreading of the legs. Remedy this at once by setting the little gosling tightly between two small boxes after you have set the legs normally under the little fellow. He will sit down on them and be all right after a day. In some cases, when he wants to rise up prematurely, another obstruction should be placed lightly over his back.

The goslings with the old mother or hen should be confined for a few days, especially if the weather is cold and stormy. I aim to keep them under strict control within a very small grassy space for at least two weeks, so that the little fellows are steady on their feet and able to scamper about. These nursery plats, 10x15 feet, I make especially for them. The ground has been levelled and sown to grass the year before. As I use a mixture of various grasses and clovers, such as seed stores offer for shady nooks, the plat offers a great variety to the goslings. This has been kept cut by a lawn mower and the sproutings are tender and juicy. Chopped lettuce, the tops of green onions, goose grass or clivers and nettles (Urtica), can also be chopped fine and fed, either straight or in a mixture with a little corn meal, white middlings and a

(Continued on page 167)

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EDITORS

THOS. H. WITTKORN W. F. MASSEY W. H. TOMHAVE
A. E. GRANTHAM CHARLES A. McCUE
F. V. L. TURNER J. H. REED
EDWARD T. WALKER, Managing Editor

SPECIAL REPRESENTATIVES

J. C. Billingslea, 119-123 W. Madison St., Chicago.
708 Kresge Bldg., Detroit, Mich.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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Statement of the ownership, management, etc., required by the Act of Congress of August 24, 1912, of The Practical Farmer, published semi-monthly at Philadelphia, Pa., for April 1st, 1917.

State of Pennsylvania, County of Philadelphia } ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Edward T. Walker, who having been duly sworn according to law, deposes and says that he is the publisher of the Practical Farmer and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, to wit:

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(*Signed*) EDWARD T. WALKER, Publisher.

Sworn to and subscribed before me this 26th day of March, 1917.
(SEAL.) (*Signed*) ALBERT M. ROTH, Notary Public.
Commission expires January 25, 1919.

APRIL 15, 1917

Our Part in the War

WAR is here! We of the United States are no longer spectators, theorizers, arguers as to the right or wrong of war or for or against preparedness. War is an actuality in our midst—the time for discussion, theory and quarreling is past. No matter what our individual opinions may have been as to what our Government should have done, or the right or wrong of war in the abstract, it is our individual duty to stand behind our Government in what it has done and to win this war. The United States has never lost a war yet and this is no time to begin losing.

The first essential to success is that every individual who has enjoyed the protection of the American flag must realize that he or she has an individual part to perform and is a live factor for or against ultimate victory. This is not a war which can be left to our regular navy and army or our volunteer sailors and soldiers to fight alone. Every single one of us at home, on the farm or in the office or shop has a burden to shoulder and a work to do, the cheerful, faithful, energetic performance of which will hasten, the shirking of which will retard, ultimate victory.

Never in the history of the world has the burden which rests upon the farmer been so clearly brought to the fore; and especially is this true of the position of the American farmer, for to him a good portion of the soldiers and their dependents in the other nations fighting our common enemy are looking for the sustenance which will enable them to win their battle. Lands laid waste by war cannot produce the means of life for those who are still fighting over scarred battlefields. Nearly three years of devastating warfare has strained the resources of European nations and today the war settles down largely to a question of which side can obtain food, clothing and munitions to outstay its adversaries. The entry of the fresh, undevastated United States of America should turn the scales against our common enemy—provided we all come to the front with a will and do our part in providing what our allies so sorely need. Therefore, we American farmers must now carry the burden, not only of providing food and clothing for our own warring nation, but of providing as well for a large portion of our battling allies if ultimate success is to crown our united efforts.

In Great Britain, France, Italy and the smaller nations at war small acreage is a limiting factor in production; not so in this country. Here we have no need to plow up public parks, pleasure grounds and beautiful private estates to produce food—we have plenty of acreage ready to produce abundantly if put under proper cultivation. The limiting factor here appears to be man power. Our greatest difficulty last season, and in a lesser degree for many seasons past, has been the shortage of farm help for the cultivation and harvesting of our crops. That the shortage of help will be greater this season than last is certain; many of our farm boys and young men will be called to the colors to serve in either the army or navy—others will be called to munitions plants and shops which produce the tools of war. That the farm ranks will be filled in part by boys of tender years and even by women is probable, but the fact remains that we have got to make man power more effective in some way. It will require the most careful planning and the most efficient use of every means at our hands to accomplish the tasks that we are called upon to perform this season.

Already the Department of Agriculture, the agricultural press and agricultural organizations all over the country are organizing to plan efficiency in the season's work. Much valuable help will undoubtedly result from this mobilization of agricultural forces. but the point we want to make is that all this will be useless, unless every individual farmer of us "keeps his ear to the ground," reads, discusses, thinks and, above all, realizes the seriousness of his part as a good citizen in this emergency and as an indispensable part of the great machine which will grind out ultimate victory.

Wheat and Rye Prospects

IN view of all the talk regarding preparedness, mobilization of farm labor and increasing production, some figures which the Bureau of Crop Estimates of the U. S. Department of Agriculture made public on April 7th demand the attention of every thinking man. The Bureau reports that the average condition of winter wheat on April 1st was 63.4 per cent. of a normal crop, against 78.3 on April 1, 1916; 88.8 on April 1, 1915, and 86.2, the average condition for the past ten years on April 1. From December 1, 1916, to the first of this month the condition of winter wheat is reported to have decreased 22.3 points, as compared with an average decline of only 4.0 points for the past ten years between these same dates. The Bureau then takes these figures and by assuming that there will be the average abandonment of acreage and average influences on the crop until harvest, estimates that the wheat crop will amount to 430,000,000 bushels against 481,744,000 bushels, the reported crop for 1916, and 673,947,000 bushels in 1915.

The average farm price of a bushel of wheat for the whole United States on April 1st, according to the report, was $1.80 as compared with 98.6 cents one year ago. Vermont reports the highest price, $2.09 per bushel compared with 99 cents last year, while Oregon reports the lowest price, $1.54 compared to 84 cents one year ago. This seems to indicate that wheat this year is going to be valuable and that it will not only be profitable, but that it is the war time duty of every farmer to carefully tend to what he has, and see that it is all safely harvested.

The report on the outlook for the rye crop presents a brighter prospect. On April 1st the Bureau finds the condition of rye to be 86 per cent. of normal, against 87.8 on April 1, 1916, 89.5 on April 1, 1915, and 89.6 the average condition for the past ten years on that date. Estimating the harvest on the basis of these figures, same as was done for the wheat crop, they forecast a production of approximately 60,000,000 bushels. Comparing this with last year's estimated production of 47,383,000 bushels and a five-year average of 37,568,000 bushels, it would appear to indicate that this year's crop will at least be normal if not a little above the normal yield.

Write the Boy and Girl

WHEN have you written last to that boy or girl away from home at school or employed in the city? To them it has been a long time since the Christmas holidays and nobody except those who have experienced it can realize what a great way off the summer vacation seems. A letter from home is always acceptable and often comes just at the time when things are looking the bluest. Mother generally is the one on whose shoulders falls the responsibility of writing and her letters contain not only words of cheer, but a careful review of how things are going at home. Father, when he does write, generally does so in as brief and business-like way as possible, and were it not for the checks which he encloses mother would be by far the better one to keep home interests alive. Nothing lends courage as much as a good, warm letter when things seem to go wrong. It need not be written with a flourish or in fancy language, for if it comes from the heart the penmanship and construction count for naught. If you haven't sent such a letter lately, write one tonight.

Those Back-Yard Gardens

EVERYBODY from Secretary of Agriculture Houston down, including governors, mayors, college and school teachers, metropolitan and trade papers, are all advocating, this year, "back-yard gardening." It is a good movement and we believe in it but cannot see that the final harvest will be all that some of the enthusiasts hope for. One result it will have is not only to give the "gardeners" a healthy appetite from outdoor labor, but to give them a better appreciation of the labor and care required to produce food. Those who succeed in getting a crop will find ready sale for the surplus, fresh or canned. Market gardeners and farmers who raise truck for market need have little fear, we think, of this competition. The New Jersey producers are said to be using five million dollars worth of fertilizer this season, and if conditions are favorable they will have one of their bumper crops, we understand from the New Jersey Agricultural college

Bulletin Helps for Farmers

Enormous profits have recently been claimed for fox farming, or "fox ranching," as it is called in Canada. In order to correct some of the erroneous impressions which have been broadcasted, as is always the case when a thing is being "boomed," the Federal Agricultural Department has issued Farmers' Bulletin 795, on "The Domesticated Silver Fox." It consists of 32 pages and is a complete and authentic account of this new subject from start to finish.

If you have ever wondered "which is the best breed of swine," don't fail to get a copy of Farmers' Bulletin 765 from the U. S. Department of Agriculture, entitled, "Breeds of Swine." It illustrates and describes 13 breeds which are most commonly known in this country, and also gives the names and addresses of the secretaries of the various breed associations.

Not only women in the country, but all housekeepers who have the responsibility of providing three daily meals will be interested in Farmers' Bulletin 808, "How to Select Foods." This bulletin tells in a general way how the different foods meet the needs of the body and how they are supplied. It is not a treatise on how to reduce the high cost of living by suggesting certain cheap foods, but it endeavors to show a simple method of selecting and combining food materials.

The above three Farmers' Bulletins can be obtained free by making a request for them to the Secretary of Agriculture, Washington, D. C.

"Sewing for Girls" is the title of a 36-page bulletin recently issued by the Extension Service of the University of Wisconsin. The diagrams and illustrations with which it abounds make it doubly valuable as an aid to any one who makes wearing apparel of any kind. A letter addressed to the University at Madison, Wis., asking for Circular 65 will bring you this publication, which is the best on its subject which we have had the pleasure to receive.

THE GARDEN

Edited by W. F. MASSEY

All articles for, or questions relating to this department should be addressed "The Garden," The Practical Farmer, Philadelphia, Pa.

Growing Onion Sets

I always prefer to grow my own onion sets, as I use sets only for fall planting to get early green onions, and hence want an early variety. Most of the onion sets on the market in spring are grown in the West and we have long ago found that western-grown onion sets do not do as well in the East as those grown here. There are two varieties I have found best for green onions. One is Norfolk Queen, an early white onion, very different from the Queen of the northern catalogues. The other is the white onion called Pearl. This is later than the Norfolk Queen and perhaps a little more hardy in winter. Either can be kept over for spring planting.

The time for sowing seed to make sets is from the middle to the last of April. I open wide, shallow furrows, sowing the seed very thickly in a band 4 inches wide and make these rows 16 inches apart. Thick sowing is important, as we do not wish the little bulbs to grow larger than a marble. It is a crop that demands clean cultivation and one must get right down to it and pull out every particle of weeds and grass from the rows. When the tops turn yellowish and ripen I shear them off and take up the bulbs. I spread them on shallow trays to cure in the sun, but take them in to protect from dew at night. For planting, the bulbs are screened through a sieve of half-inch mesh and the little ones are planted by themselves. In growing onions from sets one must watch them closely, and if any seed stalk shows nip it out at once, for if allowed to run up to seed the onion will be hollow and worthless.

Spinach in the Home Garden

Market growers cut spinach below the ground, taking the whole plant and cleaning up the ground as they go. In the home garden where space is limited it is often desirable to prolong the cutting, and instead of cutting under the plants, to cut only the large leaves and get further growth on the plants. But, as spinach soon runs to seed when the weather gets warm, I usually sow enough to warrant cleaning the ground as we cut, thus enabling me to get in succession crops, for one of the most important things is to keep the garden everlastingly at work.

Using All Garden Space

One of the advantages of the early radishes is their speedy germination and quick growth, thus getting them out of the way of other things. In sowing seeds like parsley, parsnip and beet, it is very desirable to mark the rows so that the soil can be kept clean. Therefore, with these slow-germinating seeds we scatter a few radish seeds along the rows and soon have them marked, and we get the radishes out before their room is needed, and do not have to prepare space especially for them. In like manner we save room by growing the tall peas and beans on the woven wire fence that surrounds the garden. Then, too, we find that the seed of the chard germinates much more quickly than the early beets that are grown for the table, while the chard is grown for the tops. In sowing early beets we drop a seed of the chard every six inches. The beets are thinned and come out leaving the chard for the whole season. We set strawberry plants right in the rows where the early dwarf peas have been planted. The peas soon come out of the way and the strawberry plants seem to benefit by their presence, for the dead pea tops are dug in between the rows. The strawberry bed which has made its second crop is turned under at once after the fruit has been used, and a succession crop planted. Things that come off early should be associated together in the garden, so that there will be larger blocks for the succeeding crops.

With My Correspondents

GROWING LIMA BEANS. — "Please tell me about growing lima beans and what varieties are best."

In my garden I plant the Fordhook lima beans in rows 2 feet apart. If for horse cultivation I would make it 2½ feet. The beans are dropped 6 inches apart. In my first trials of this bean I planted them about as thickly as we do string beans, but I soon found that they needed a little more room for their best development. One plant in a place 6 inches apart will be about right. I could not say what the average yield per acre would be, for I have grown them only for home use and never kept account of the yield. I would assume that 30 bushels an acre would be a fair average, perhaps. They keep blooming all summer through and are usually full of bloom when frost comes. The potato lima class, to which the Fordhook belongs, has always been with us the most productive of the large limas. Coming southward the large white lima varieties become unproductive, and the most productive of all is the small lima, the butter bean of the South. For support

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120-inch Wheelbase

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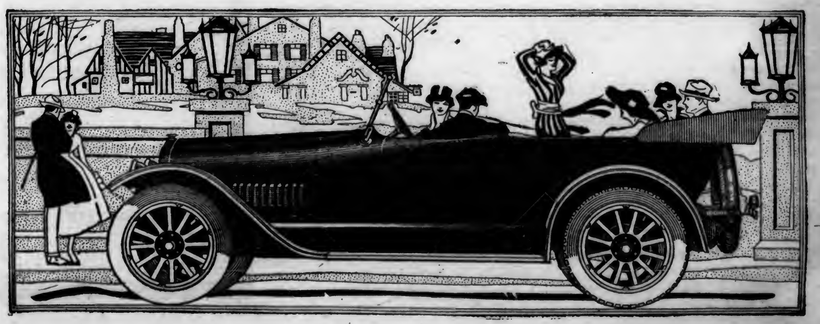

of the climbing varieties a 5-foot width of the chicken wire netting is sufficient if set to stakes with the lower edge a foot from the ground. The beans can easily catch to the wire at that height, and it is always an advantage to have the wire above the ground and no. in the way of cultivation and weeding. Plant the beans a foot apart along the line of the wire. You can easily find the yield by keeping an account of a certain area.

GROWING PEANUTS.—"Living in Massachusetts and having a small garden, I take some pleasure in experimenting with things not usually grown here. I want to try a row of peanuts about 40 feet long, and want to know if they must be shelled and where I can get the big white nuts and all about planting and cultivating."

If you have a light sandy soil you may perhaps make a few ripe nuts in Massachusetts. Use the Jumbo seed, which must be shelled, but the red inner skin must not be broken. A very liberal application of acid phosphate should be put into a furrow for the row, and a furrow from each side thrown over it, making a ridge. This is flattened and two nuts planted in a place every 15 inches. Cultivate clean, and take care not to cover the blooms, for they must be pollenated above ground, and will go into the ground of their own accord. Let them grow until frost threatens, and then take them up with the tops adhering. On a large scale they are stacked in the field for curing, but as you will have but few you can put them in a heap under cover with the nuts entirely covered with the leaves, for if the green nuts are exposed to the light the shells will turn dark. When cured and tops dry they can be picked off and roasted.

PLANTING CORN IN NORTH CAROLINA.—"I have just moved to North Carolina from the neighborhood of Philadelphia. I want to plant my corn 4x4 feet and cultivate both ways, as I have always done. But they tell me that it cannot be done here. Please tell me why."

In the rolling uplands of the South the non-glaciated soils wash into gullies far more easily than the glaciated clay loams of the North, and any cultivation straight up and down hill will result in gullied land. When you have been one summer in North Carolina you will be able to see why some care must be taken to prevent washing, for you have rarely seen it rain in Philadelphia as you will see it come down in the summer torrents in North Carolina. The only way to plant corn on the rolling uplands in the South is to drill it on the level contour of the hills. Straight rows and checked corn are out of the question. Make the rows 4 feet apart and thin to 2 feet in the rows. Cultivate level and avoid making any valleys between the rows to gather a head of water to break over and make a wash.

Garden Gossip

The long continued rains of March have put garden work behind and there are many things that are usually done in March which must still be done.

We always like to take a little risk in order to get ahead of our friends. There is no more pleasant rivalry than in the garden. This garden competition often involves loss of some seed or plants, but in that event one is still on a level with the others. Down here I have planted corn in March and had it come through safely.

—o—

By the end of the month the cantaloupes and cucumbers can be planted. The early tomato plants will now be in the frames and close attention must be given to them not only in protecting from severe cold, but in keeping them as hardy as possible. We usually risk the first planting soon after the middle of April, always keeping plenty in reserve in the frame for replanting if needed. Beets can still be sown, and any that have been grown in the frames and are of fair size can be thinned and the thinnings transplanted outside.

—o—

In the North parsnips and salsify can be planted, but here and southward the season is too long for the early sowing and the roots are better when sown in June. Sow peas for succession. Here I make my last sowing early in April of the Champion of England. I have Nonpareil, Thomas Laxton and Gradus already growing.

—o—

Spray the Irish potatoes for the beetles as soon as the plants are well above ground. The old beetles will be crawling around and laying eggs. They do not eat much but they do eat some and the poison that kills one of these cuts short the hatching of thousands. Spraying with Bordeaux mixture will prevent the early blight and can be used to carry the lead arsenate at same time.

—o—

Sow celery seed for the winter crop. Sow in lines of a well prepared bed, put the seed down and cover the bed with gunny sacks and water on these, taking the sacks off as the seed germinates.

—o—

Sow leek seed on a border to grow plants for transplanting in July. Transplant lettuce into beds 6 feet wide and 10 inches apart each way. Manure heavily and push them along with applications of nitrate of soda. Lettuce must be grown fast to get headed before the hot weather comes.

Profitable Vegetable Crops

Many farmers are not able to plant crops such as potatoes, celery, onions and asparagus because they require too much work and expense before the returns are realized. Accordingly, the New Jersey State Agricultural College and the farm demonstrators in the organized counties are calling the attention of the farmers who do not have a great deal of capital at their disposal, to those crops which do well on poor soil, cost little to grow, require but little work, and yet offer an opportunity for good profits.

The growing of dried beans is very promising for this coming season. The yield per acre in what used to be heavy-producing sections in other states is rapidly diminishing because the soil has become "bean sick." At the same time the demand for beans has rapidly increased, because of their most excellent value as food for soldiers. A man in Hunterdon county writes that last year he grew 127 bushels of pea beans on 8 acres, and sold them for $812.80, net.

Can-house tomatoes promise to sell very high this year and peppers usually produce a neat profit per acre. Late fall cabbage usually does well in northern New Jersey, especially when the ground is plowed and kept harrowed a month before the plants are set, to allow moisture and available plant food to accumulate. The seed and the planting of these crops, as well as the cultivation and harvesting, cost but little, and although some fertilizer may be necessary, there is an excellent chance for profits. That certain crops meet such requirements has been demonstrated many times by growers who were forced to meet these conditions.

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1091

HORTICULTURE

Edited by C. A. McCUE

Orchard Cultivation

Should the orchard be cultivated? It would seem that there could be but one answer to such a question. The majority of successful fruit growers would say yes, at once; yet there are thousands of orchards that are not cultivated and are yielding good returns. I think that I can say without fear of successful contradiction, that, as a general principle, orchards need cultivation by means of tillage. Many non-tilled orchards that are paying good interest on the investment would be still more profitable if tilled each year. There are, however, many orchards in unusual locations that are much better off untilled. Hillside orchards on lands that wash badly are best left in sod. Many such orchards occupy land that would otherwise be useless for agricultural purposes. Many of them may be found in the hill regions of Pennsylvania, West Virginia and southern Ohio. In most of these orchards the sod mulch method of management has proved highly successful. One has only to point to the famous Rome Beauty orchards of U. T. Cox to be convinced that under certain conditions sod mulch may be a good method of handling apple trees. Again there are orchards upon lands that contain plenty of moisture under practically all circumstances. In such lands sod mulch will give as good results in yield and quality of fruit as nearby tilled orchards and at greatly lessened cost.

Examples of sod mulch orchards are to be found in the Vergon orchard at Delaware, Ohio, and the Hitchings orchard at Syracuse, N. Y. These famous orchards have been referred to time and time again and many persons, yes even experiment station horticulturists have taken them as proof that the sod mulch method was the proper way to handle apple orchards. As a matter of fact, sod mulch, or any other sod method of orchard management is a special method and cannot be applied to orchards in general. One should never attempt to figure out a general law from a special case.

For the great majority of orchards tillage is the proper method of management. Whether or not one should practice clean tillage or tillage and cover crops depends upon circumstances. Tillage increases the feeding area for trees by mechanically fining the soil particles, regulates the moisture content of soils and renders plant food available.

The two great problems in growing fruit are to regulate the food supply and to regulate the water supply. The more I see of fruit growing and fruit growers the more I am convinced that regulation of the water supply of the soil is the all important problem. Trees may suffer as easily from too much water as from too little. To properly regulate the water supply may in one case call for sod mulch, in another tillage and in still another tillage and cover crops.

If the orchard is to be tilled should it be plowed? Here again our answer must be governed by circumstances. In general, yes; in some special cases, no. I know many apple orchards that are located upon light or medium sand loams, with clay subsoils, say two feet under the surface, that can be handled just as well by disking with a cutaway harrow as by plowing. If one has a heavy cover crop to get under, undoubtedly the plow is the proper tool to do the job. Where the disk can be used it lessens materially the cost of cultivation. If I were to be limited to only one tool for orchard cultivation I would unhesitatingly choose the disk harrow.

Peach orchards should always be tilled. I have yet to see a successful peach orchard that was handled by any method of management but tillage. Sod and peaches do not agree. Sod gives a peach tree indigestion and jaundice. For several years the writer has been handling a successful peach orchard. This orchard has borne five successive crops and has fair prospects for the sixth, yet since its third year this orchard has not had a plow in it. It was plowed each successive spring until it came into bearing; since that time all the tillage has been done with an extension disk harrow. The plowing for the first three years was about 6 to 7 inches in depth. That treatment caused the main brace and anchor roots to strike deep. These roots are below the reach of the disk, which is only run about 3½ to 4 inches deep. From my experience with this orchard I would handle another one (if I were to plant one) in the same manner. During the past five years portions of this orchard have been cover cropped to rye, vetch, oats, cowpeas, soy beans, Cowhorn turnips, Mammoth clover, rape and Crimson clover. The disk has handled all these cover crops and incorporated them with the soil without the least trouble, except the rye, and even that has been successfully handled once we have learned the proper method of handling.

The pear perhaps more than any other tree fruit comes nearest to thriving best under sod conditions. Yet this is so more on account of less danger from blight in sod orchards than for any other reason.

If we were to briefly review the tillage of the ordinary apple orchard I could say, plow as early in the spring as possible, harrow over at once, work down thoroughly with a disk harrow within the first week after plowing and then harrow over once every ten days until June 1st, give one or two harrowings during July and then sow a cover crop.

Many orchardists prefer to defer the plowing until after the scab spray (blossom cluster spray) in order that they may have solid ground to haul the heavy spray machine over. In some cases this is good practice, in others not. In some regions in the North and upon certain soils it is good practice to fall plow the orchard and then work it up with the disk in the spring. Undoubtedly this method has many advantages in controlling certain diseases and insect pests. On the lighter orchard soils such as are found in southern New Jersey, Delaware and eastern Maryland, I would think that fall plowing of apple orchards was not good practice. In certain regions of New York, Pennsylvania, Ohio and Michigan fall plowing has many advantages. Fall plowing, however, must, like sod mulch, be looked upon as a special method of management. The skill and judgment of the owner must determine many of these problems.

For the majority of orchards we can only say: "Be sure you till, then go ahead."

Be sure to prune the newly set fruit trees so that they will have a low head. This will be of great value when the fruit is ready to pick, as it will save time and labor and possibly some one falling from a ladder.

Bees Help Fruit Growers

Did you have a full apple crop last year? Failure of some varieties of apples may be due to lack of pollination. Many varieties of apples, like Arkansas Black, Jonathan and York Imperial, are self sterile and cross pollination is absolutely essential if a set of fruit is obtained. Other varieties like Ben Davis, Yellow Transparent and Willow Twig are only partly self fertile and again cross pollination is necessary. T. J. Talbert, of the Missouri College of Agriculture, recently told how bees help to make a fruit crop.

The numerous white, showy flower clusters act as a guide to the insects, and may attract them far away. When a bee alights on a flower its hairy body may be covered with pollen from another variety of apple. As the bee works its way down to the bottom of the flower to get the nectar it rubs its dusty body against the stigma or female organ of the flower and cross pollination is accomplished.

It is a well known fact among the best fruit growers that the weather conditions during fruit bloom have much to do with the setting of the fruit. If the weather is clear and warm at blooming time the bees are active and cross pollination proceeds rapidly, while if the weather conditions are wet, cloudy and cold the insects are not active and usually a poor set of fruit is secured. Strong cold winds may often prevent the bees from cross pollinating one side of the apple trees and this may account for the set of fruit on only one side of the trees.

Actual counts and observations at blooming time have shown that the honey bee is decidedly the most important insect in the work of pollinating the fruit flowers. Many counts have shown that from 75 to 90 per cent. of the insects pollinating the blossoms were honey bees.

The wind cannot be relied upon as an agency to transfer pollen from apple tree to apple tree throughout the orchard. This work must be accomplished by insects, and the honey bee is by odds the most important of them all. Bees will pay for their keep in honey, aside from their services in fruit production.

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TIGHT BINDING TEXT CUT OFF

Soils and Field Crops

Conducted by A. E. GRANTHAM

In this department will be answered questions relating to soils and their improvement, field crops and the use of lime. Questions should be addressed to the "Soils and Field Crops" department, care of The Practical Farmer, Philadelphia, Pa.

The Disking of Land Before Plowing

It often happens that a portion of the land intended for corn, especially if it has had a tilled crop the year before, becomes very hard and dry before it can be plowed in the spring. The result is that the land breaks up hard and cloddy, requiring an extra amount of labor to put it into condition. Very often it is impossible to plow the entire acreage while the ground is in the best condition of moisture, owing to lack of time and labor. However, this may be prevented by disking the soil with a cutaway harrow or an ordinary disk before the surface of the soil becomes hard. This forms more or less of a mulch and prevents the soil from drying out so rapidly. Then when the land is turned it will be found to break up like an old garden, friable and mellow. It may appear that the early disking is extra work, yet the mellow condition of the soil after turning requires less labor to reduce it to a fine state of tilth. It is doubtful whether the disking is really extra labor, since the moisture conditions of the disked soil are so much more satisfactory. This practice is to be especially recommended where land must lie rather late in the spring before plowing.

Aside from the moisture conditions, soil that has been disked turns more readily and leaves less air space at the bottom of the furrow. If there is organic matter, such as manure, on the surface it is more completely mixed through the plowed soil if previously disked. Some of the most intensive farmers are taking up the practice of disking all ground before plowing. The best potato growers of Aroostook Co., Maine, thoroughly double disk the sod land before plowing for potatoes. They find this is the only way in which to incorporate the sods with the soil. The land is then plowed 7 or 8 inches deep, with the result that instead of having a furrow slice on edge or inverted, a portion of the organic matter is turned to the bottom of the furrow while the remainder is mixed in the upper soil. This is a method of saving soil moisture and labor as well, and the results will surprise any one who has not followed the practice.

Do Not Plant Corn too Early

In every farming neighborhood there is always to be found an individual or two who endeavor to plant their corn earlier than any one else. This is a ruinous sort of competition if many engage in it. The fact is the rivalry often gets the better of the judgment of the growers. We well understand that corn may be planted too early. Yet there are those farmers who for the sake of outdoing their neighbors are willing to take the risk. There is no doubt that early planting is attended with certain danger.

In the same locality some fields, owing to the character of the soil, may be planted much earlier than other fields. This is due to better drainage and better physical condition of the soil. Aside from this, the weather never becomes settled from a given date. The spring may start off with the temperature gradually increasing until the latter part of April, when conditions may appear auspicious for planting, but very often a period of cold, wet weather will follow. It is under such conditions as these that early planted corn often suffers.

A cold, damp soil tries very severely the vitality of seed corn and much of it which would ordinarily come up and grow if the weather were warmer rots in the soil. Careful tests by experiment stations have shown that certain kernels of corn if subject to such conditions will not grow. Also, even if the corn comes up the slow growing weather renders the plants subject to attacks by insects which they cannot overcome. A rapidly growing corn plant is not so easily damaged by cutworms, etc., as one that is developing slowly.

In most sections of the corn belt there is a considerable period during which corn may be planted and mature. It is important to have the ground well prepared and the soil warm enough to cause germination in a short time and continue growth from the start. Any relapse in growth is dangerous for the plant. A well fertilized soil in good physical condition will always mature a crop and the better the soil is in these respects the less the necessity for rushing the planting. Experiments do not show that extra early planted corn has any advantage in yield over the average date of planting, other conditions being equal. Be sure of the soil preparation and fertilization before you decide to plant. If the season is not well settled you can afford to delay the planting.

A Farm Team Which Can Work 24 Hours and Never Get Tired

The Top-Dressing of Wheat With Nitrate of Soda

Wheat that passes the winter in a backward condition can often be profitably improved by top-dressing with nitrate of soda. The usual application is 100 to 125 pounds per acre, and should be made about the middle of April or when the wheat has started to grow. It is not usually profitable to attempt top-dressing a poor stand of wheat or where the plants have been badly lifted out by the frost. Late sown wheat that was well supplied with phosphoric acid the previous fall will generally respond most readily to such treatment. The nitrate of soda is best applied with a wheat drill in order to regulate the quantity more accurately. It will be found advisable to mix with the nitrate of soda equal parts of acid phosphate to increase the bulk and facilitate the distribution. While nitrate of soda is very high in price, about 40 per cent. over the usual quotations, yet the price of wheat has also advanced from 60 to 75 per cent. The reason for not applying nitrate of soda early in the spring before the wheat plants have well started, is that much of the nitrate may be lost by leaching due to heavy rains. An increase of 6 to 10 bushels per acre has been secured in normal seasons. It is only when the seasons are very dry immediately after the application is made that little increase in yield is noted.

Grow a Few Soy Beans

There is no crop that can be grown in this climate that will produce from an acre of land in three months from time of planting as much protein as the soy bean. The crop matures in 90 to 110 days, thus avoiding the risks of winter as in the case of alfalfa. While alfalfa is a wonderful crop it requires a greater expenditure of money and labor in preparing the land and furnishing fertilizers and lime. The soy bean is not exacting in its soil requirements. Land that will produce a good crop of corn will yield a satisfactory crop of soy beans. Further, the work on the bean crop does not seriously interfere with corn growing. It is best to plant the beans a week or ten days later than the corn. If the beans are drilled as oats or wheat and not cultivated they need no further attention after planting until ready to cut for hay, which will generally precede the harvesting of the corn. If drilled in rows 32 to 40 inches apart about three cultivations will be required. The former method requires about six pecks of seed per acre, while if seeded in rows a peck and one-half are usually sufficient. It is advisable for the beginner to grow the beans in rows and cultivate them. In this manner less outlay is required for seed and a knowledge of the requirements of the plant more readily acquired. The hay made from soy beans grown in rows is generally a little coarser than when sown solid. Cattle and horses, however, relish it so none is wasted. Every stock farmer should grow the soy bean for a trial at least. He will be more than delighted with the feeding value. Even hogs will consume a considerable quantity of soy bean hay if given the opportunity. The writer is not inclined to encourage farmers to grow the beans for seed to sell. It seems a better policy to use the beans for hay and sell more of the timothy crop. Soy bean hay is much richer than timothy in feeding value and the manure from it would be worth more to the land than from the other crop. The soy bean being a legume, has the capacity of adding nitrogen to the soil, thus making for soil improvement.

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The soy beans may be cut for hay at any time after the pods begin to form until the beans turn yellow. This gives considerable latitude to the harvesting season. The best known varieties for hay making are Wilson, Ebony and Ito San. The Wilson makes the largest growth. There are many other good varieties but not so well known to the seed trade. The Mammoth Yellow is a Southern variety that makes a large growth, but is very late in maturing and the stems are quite coarse. The Medium Green is another well known variety and is particularly well adapted to the short summers of the Northern States.

A few cautions are necessary for the beginner. Do not plant the seed too deep—1½ to 2 inches is sufficient. If the beans are seeded solid, delay sowing until the ground is thoroughly warm, otherwise the weeds may grow faster than the beans and crowd them. Inoculate the seed with the bacterial cultures for the soy bean. This can generally be obtained free from the U. S. Department of Agriculture at Washington.

Fertilizer Aids All Crops in Rotation

From one-third to one-half the total effect of fertilizers and barnyard manure is carried forward, under ordinary conditions, to crops following the one to which the treatment has been given, according to results obtained by the Ohio Experiment Station after 23 years of experimentation with different crops in various rotations. For this reason tenants should pay only part of the cost of fertilizing and manuring.

Where the fertilizer has been applied only to wheat in a five-year rotation at the Ohio Experiment Station, only 51 per cent. of the total increased yield has been realized in this crop, and 49 per cent in the hay, corn and oats following it. Where the fertilizer has been applied to both wheat and corn in this same rotation, 65 per cent. of the total weight of increase has been realized in the fertilized crops. The same two crops when treated with barnyard manure have returned 52 per cent. of the total increased yield. Where manure has been applied to corn in a 3-year rotation of corn, wheat and clover, only 47 per cent. of the total increase due to the manure has been realized in the corn crop.

Brown Crowder Peas in Silage Corn

R. B. RUSHING.

Some subscribers want to know more about growing Brown Crowder peas in corn. Ever since I was small these peas have been raised more or less in my neighborhood. My mother always raised a few, as they are excellent to eat. We never thought of selling seed, and I have never tried to sell any myself. I thought that almost everybody was familiar with them. Perhaps they are not.

Now as to raising them in corn, when I drill the corn, I have to go over it again and drill the peas. When the corn is dropped by hand, as father always did, and I did years ago, and sometimes do yet, it is easy to have some one go along and drop two peas in the hill. I do not deem it necessary to go into details about how to prepare the soil, for the peas will come as near growing and making a good crop on the poorest soil as anything; yes, nearer than anything I ever saw. Cowpeas can't hold them a light. This year I had some white peas planted alongside some Crowders. When the white pea vines were dead and leaves dropped, the Crowders were full of green leaves, ripe pods and bloom, and remained thus until frost. I have none for sale this year, but if they are as little known as it seems, I shall save them next year. I put lots of them into the silo that could have been gathered ripe.

They are especially valuable in that they will make a crop, if corn does, rest assured of that. They will outyield any pea I ever tried. Don't know what they might do elsewhere. They will stay green (in the driest time—mine never dried up) till frost. When you want to cut the corn you have them ready, for they always have young peas, ripe peas and blooms. They might not work real well in a corn cutting machine—I don't know, never having tried it. They give the silage an excellent flavor and they are highly nutritious.

Women folks don't much like to cook them, because they are dark, but they are exceedingly delicious. I don't care for looks as much as taste. I almost hesitate to make their good points strong enough. Suffice is to say: Once tried always planted.

Illinois.

[The Brown Crowder peas are sold under the name of Michigan Favorite, and are about the best of the cowpea family for Northern planting. One farmer in Michigan wrote me that he had ripened 50 bushels there.—W. F. MASSEY.]

Lime Limits Crop Yield

Crop yields are limited by a lack of lime. Good farming requires that the lack be supplied. The tendency of soils to lose their lime results finally in clover failure and gives opportunity to sorrel, plantain and other worthless plants which thrive with a lower percentage of lime in the soil.

The amount of lime that should be applied to land varies. If a soil is a tenacious clay and physical improvement is desired, an application of two or three tons of stone lime may be profitable. Ordinarily, lime is applied to make a soil friendly to clover and other plants; and the equivalent of one to one and one-half tons of stone lime per acre, applied once in each rotation, is usually a maximum amount. In many instances 1000 pounds per acre will accomplish the desired result, and smaller amounts may be sufficient. The equivalent of 1000 pounds of stone lime represents between 1300 and 1350 pounds of slaked (hydrated) lime, or a little less than one ton of raw limestone reduced to a powder. While some experiments, according to authorities at the Pennsylvania State College, seem to show that ground limestone has given a little better return than the caustic forms, such returns are not usually sufficiently greater to justify the use of ground limestone at a disproportionate price. If two tons of ground limestone cost much more than one ton of burnt lime, ordinarily one would not be justified in using the former.

In cases where lime must be shipped some distance, the more concentrated forms are usually the cheaper.

Queries Answered

Use of Muck from Pond.—F. R., Long Island, writes us: "I would like to know if the old leaves and muck from the bottom of a fresh water pond are good to use for humus around fruit trees and berries, and also in vegetable garden."

The leaves and muck from the bottom of a pond will make excellent material to apply to berries and to the vegetable garden. The decayed leaves will furnish considerable plant food and humus. The combination will also undoubtedly greatly benefit the physical condition of the soil in the garden. The plant food value of this material will depend quite largely upon the thickness of the deposit of decayed leaves. I doubt if it will be an economic proposition to apply this material to an orchard. A great deal will depend upon the cost of getting the material out of the pond and of applying it to the land.

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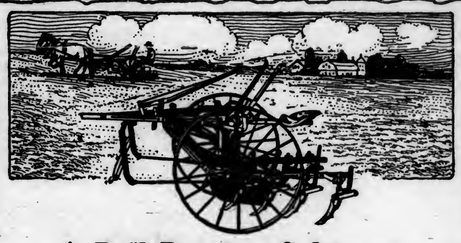

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The gang movement is parallel, which means that every shovel cuts its full depth regardless of the position of the gang. By means of the pivot axle construction in connection with the parallel gang movement, you can quickly dodge back and forth among crooked rows and do a clean job of cultivating even where the corn has been carelessly planted.

The **International No. 4** is especially good on hill sides. By means of the pivot axle, it is no effort to hold the wheels to take the ground uphill, thus maintaining a straight line of cultivation the same as on the level.

There are many valuable features on the **International No. 4** such as steel pole and neckyoke, center lever, depth control, and extra strong wheels oiled by hard oilers. Our interesting catalogue shows all these points. It also contains illustrations and description of each of the other **International** cultivators that make up the **International** line. Send for this booklet today.

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FOR SALE 406 acres, good fair buildings, nice lot of timber. Must be sold owing to old age. $4000. Cornell Company, Great Barrington, Mass.

POULTRY

Edited by F. V. L. TURNER

All letters, inquiries and requests in reference to poultry, should be addressed to the Poultry Editor of The Practical Farmer, Philadelphia, Pa.

Practical Poultry Talks

Hatch Every Egg in Sight

Don't delay. Make every effort to get every egg under ever hen and in every incubator. If you are an advertiser, raise all you can, even to crowding—these crowds will sell to the army of defense, of offense and the vast horde that will stay at home to make the wherewithal to supply those afield.

Already the Argentine Republic is placing a ban on exports that her own people may live; the meat situation is alarming; there is nothing like a semblance of supply to meet the home demand—goodness only knows what is going to happen to those of us here that prefer red meat to fricasse of chicken.

Always, in the days gone by, the majority of eaters likened chicken unto a rare dessert, only a once-in-a-while edible that came high—and it will come high as Congress declares war. When red war comes red meat will disappear; chicken will be listed as the piece de resistance and the dear public, the stay-at-homes who wish for peace, those who wish for war and those who accept it as inevitable, will pay the price.

Labor will be scarce and the farmer may not be able to raise all of the crops he would otherwise aim to; but labor, diverted to other channels of effort and endeavor, must be fed. Since "war is hell," and since "armies travel and fight on their stomachs," hell and food must run hand in hand. If all the red meat goes to the red war, to a million soldiers and five million clerks, over one hundred and six million other souls must have food; to feed these millions there will be no red meat; chicken, plain chicken, eggs for the babies, eggs for the wealthy, eggs or nothing for the once-were meat eaters, and chicken meat for all must come from the six million farms in these glorious United States, each spelled with a big capital for each letter of its name.

Times now, in this hour of necessary preparedness, must submit to the exigencies of the case and the fowls may roost on wagon wheels, on the back of the buggy body, on the seed drill, the plow handle and lay eggs in the fire-box of the threshing engine or the tractor, and naught may be said for or against, for biddie is but contributing her mite to the solidarity of our people to the Etats Unis.

But biddle cannot stop here; there will be sick, maimed and wounded soldiers, when either dying or recovering from illness or torn and battered members, who will need the life giving elements contained in a hen broth or a delicately prepared egg. And sick babies, the aged in poor health and sufferers from epidemics will relish good fresh eggs. Truly, the hen has arrived and the farmer is coming into his own. Far be it from us to take advantage of the country in its time of greatest straits, but farther be it from us not to take care of our own and wipe out the great middle influence that caused poverty, where the central disposal system has been employed, to thousands and thousands of worthy farmers throughout this broad land.

Truly, "eggs is eggs" and "hens is hens" are going to be the slogans of the food makers on our six million farms.

Again, farm labor is going to be scarce. Our women cannot till and harvest the crops that require man's brawn, but these good souls can raise fowls and help swell "that which is theirs," the richest harvest that was ever shorn from the hoary head of Dame Nature, the golden crop from hendom.

Put by the thought of hard times in this gilded land; wake up to the moment of perfect profit; let not the grass grow under the hen's feet while more chickens spell success. Go after the easier way and collect the golden toll that comes from necessity before the devious ways of the short and effortless middle way swallows the treasure laden stream.

Never before in the history of the feathered world has there been such a demand for hen products—in the fall the laying pullet will wear a diadem. Spring chickens are rapidly going to the carat rate and every effort is being made to corral, true cowboy style, every egg that is escaping the cold storage collectors. If you have more eggs than you can possibly hatch, put them in liquid glass; they will keep at least a year. If you are in a community that supports an ice plant, organize a cold storage warehouse company—eggs are not the only things that will fill its spaces and the ice plant will fall heir to an extension of its profit period. It is there, readers, everything we have proposed, and more. It is yours to get and it is up to you to get it. Go to it.

Ranging the Young Stock

From the brooder the youngsters go to the colony houses, where artificial methods are employed—if the hen is the foster mother the chicks grow apace, at least until the old lady forsakes them for the more pleasant and profitable business of laying eggs.

Range is next to feed in making growth, housing coming into place merely as a means to protection. Like the early bird that gathers the belated worm so the hen man that opens the colony houses early gets the greater growth of chicken. No matter how early or how late the chick goes to its nightly repose it is anxious to be up and stirring at the first crack of day.

On wet mornings it has always been told to us the young chick should be kept housed—perhaps dampness outside may affect the very tender and delicately constituted, but the mother hen will rear her young in any kind of weather just to prove that the wet foot bugaboo is really imagination.

A chicken's foot is not a sponge—even if it was it would not pass moisture to the vitals of the chick, already a greater portion of which is composed of water.

Young chicks cannot always survive rainstorms; in nature the hen protects them simply because these chicks are not protected with a coat of oily feathers and the warmth they maintain. All of us know that a feather bed is warmer (it conserves the heat better) than a shuck mattress. Again, the old hen can spare enough of her body heat to keep the chicks warm, to take off the chill occasioned by a soaking, and a colony house cannot.

Damp mornings here mean heavy dews and the left-over moisture from a midnight rain. Infinitely it is better to have the birds out exercising in a dew than to have them shivering, hungry and discontented in a bare colony house.

Range promotes every function of life incident to the natural state of the chicken, and this includes growth and health. No matter how well balanced or arranged your growing ration may be the youngsters unbalance and disarrange it without your consent. A worm here, a bug there and a blade of grass upsets the whole scheme of feeds and your youngster thrives despite your precision and care. Given range and plenty of feed at night (the day time ration should be always sparingly fed) means greater activity and more nearly natural conditions, better health and lower mortality. Let us suggest that those who are for the first time ranging a flock of youngsters visit a range practicing poultryman; spend a day with him—if you are not invited to do so, do so anyway, but give your imposed-upon host an opportunity to bite your crust at some near future date. His visit to you will change your viewpoint just as it changed it when you visited the said host, only it will change it more extensively.

What can be accomplished in this swap of visits will do both of you good, a whole world of it. Try it on the first ranger you hear of; most of them are big enough to furnish range to their flocks, therefore you can safely take advantage of their greatness.

Sour Milk for Laying Hens

Skim milk, preferably sour, is a most excellent substitute for beef scrap and will give good returns when fed to laying hens. Numerous experiments have shown that laying hens fed skim milk will double in egg production similar hens fed no form of animal protein.

According to F. D. Crooks, of the Pennsylvania State College school of agriculture, the exact value of sour milk as a source of protein, is difficult to state. Numerous feeding trials, however, place its value at 50 cents to $2 per 100 pounds.

Skim milk lowers the cost of producing a dozen eggs. On the farm it may mean the difference between profit and loss in connection with the farm flock. Sour milk has a medicinal effect also. It keeps hens in good health and helps prevent disease.

National cold storage regulation, instead of individual state control, will widen the gap between producer and cold storage; and it will be a gilded causeway for the eggmaker.

If the big-gun noise in Europe has the same effect on eggs that blasting and powder mill explosions do in this country the fowl race will be extinct on that side of the pond, should the war keep up two or three seasons more.

"If the egg is 60 per cent. water and liquid iron is fed the hen, can she carry around so much metal?" is asked by the scientific student.

Save the Little Chicks

"Last year I set my incubator the first of March, hatched 126 chicks and all but about 25 died with White Diarrhea. I set the incubator again but I was almost discouraged. Then I read about IOWITE Chick Tonic so thought I would try again, but I did not have any faith in the medicine. I sent to The Wight Co., Dept. 596, Lamoni, Ia., for a 50c. package and got it just two days before my second hatch came off. I used the medicine according to directions and to my surprise I never lost one of them. I raised over 600 chicks and I always talk IOWITE Chick Tonic to my neighbors, for I do know it is the best medicine I ever used and I have been trying to raise chickens all my life and am now 50 years old. Our druggist advertises it as the best chicken medicine on earth for White Diarrhea." Mrs. Ben Hawley, Ravenwood, Mo.—Adv.

Absolutely Dependable

That's the boast of the CORRECT Coal-Burning Hover

BUILT ON a correct, patented principle—and built RIGHT. You can depend on it to raise your flocks, to reduce chick mortality, and give you big, sound birds. Costs only 2c. to 5c. a day to run. *PRICES, f. o. b. Factory,* 41-inch CANOPY, $11.75 62-inch CANOPY, $12.85

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Before you buy an inferior machine, write for FREE literature describing the Correct.

CORRECT HATCHER CO., Leesville, Carroll Co., O. Dept. 26

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KEYSTONE POULTRY FOODS

PROPER FOOD FOR EVERY AGE—from baby chicks to laying hens or vigorous cockerels. Clean, pure, wholesome ingredients—make chickens thrive. BOOK FREE. AT YOUR DEALERS OR TAYLOR BROS., 40 Market St., Camden, N. J.

Baby Chicks and Eggs

S. C. White Leghorns. Young and Barron strains. Fine stock and great layers; none better. Eggs, $1.25, 15; $5, 100. Chicks, $2 dozen, $12, 100; delivery guaranteed.

J. S. HAUPT FARM, EASTON, PA.

CHICKS that pay

Well hatched, well bred, from best heavy-egg strains of Reds, Rocks, Leghorns, Wyandottes, Cochins, etc. FREE BOOK tells how to make more money from poultry.

W. F. HILLPOT, Box 4, Frenchtown, N. J.

GEESE AND DUCKS.—Largest collection in the U. S. 500 head for sale. Large, vigorous farm grown, selected breeders, reasonable prices. Toulouse, Embdens, Brown Chinese, Africans. Ducks—Pekin, Rouen, Aylesburys, Colored Muscovys, White Muscovys, Cayugas, Indian Runners, Buffs and Calls. Every farmer should grow geese and ducks. They are money makers for you. Write today.

Chas. McClave, Box 5, New London, Ohio.

YOU'LL FIND OUR WINTER LAYING WHITE LEGHORNS and our Free Catalog (Utility Facts) both Profitable and Interesting. Stock, Eggs and Chicks.

Old Hickory Leghorn Yards, Box 7, Altoona, Pa.

BUTTERCUPS W. WYANDOTTES INDIA RUNNER DUCKS Alvinian strain, from 260 to 309-egg hens, 15 eggs, $2.00. Regal strain, pen average 269, 15 eggs, $1.50; per 100, $6.00. 13 eggs, $1.50; per 100, $6.00.

WOODVIEW FARM, Marlingen, N. J.

Barred Rocks, White and Golden Wyandotte, Light Brahmas, Leghorns, Langshans, and Orpingtons. Farm grown healthy, vigorous stock. Price quality, reasonable prices. 500 head for sale. Buy your stock from a veteran breeder. Write today.

Chas. McClave, Box 5, New London, Ohio.

QUALITY CHICKS Rocks, Reds, Anconas and Black Leghorns 15c., White Leghorns 13c. Satisfaction guaranteed. Circular. Delivery each week.

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TIFFANY'S Superior Chicks That Live Silver, White and Columbian Wyandottes, S. C. R. I. Reds, $18.00 per 100; $165 per 1000. Pekin and Rouen ducklings, 30 cents each; $25 per 100. Catalogue.

Aldham Poultry Farm, R. 35, Phoenixville, Pa.

Turkey Eggs strictly fresh from large selected M. Bronze, W. Holland, Narragansett and Bourbon Reds, good as in America. $3.75 per 13 by express or parcel post, prepaid. Safe arrival guaranteed. N. M. Caldwell, Jacobsburg, Ohio.

Hatching Eggs Wyckoff Strain direct. The mortgage lifter; $1.00 per 15; $1.75 per 30; $5.00 per 100. All perfect eggs from best pens.

J. M. CASE, GILBOA, N. Y.

CHICKS Eggs and Breeding Stock. All Leading Varieties. Order now. Safe arrival guaranteed. Booklet free.

Houck Hatcheries, Box 20, Tiffin, Ohio.

FOR SALE. Pairs, trios, pens; all varieties. Rocks, Reds, Wyandottes, Leghorns, Orpingtons, Andalusians, Campines, Hamburgs, turkeys, ducks and geese. Prices low. RALPH H. RABY, R. 6, Millersburg, O.

EGGS M. Bronze, B. Red, Narragansett, W. Holland $3.75 per 12. B. P. Rocks, S. C. R. I. Red chicken eggs $1.25 per 15. All eggs prepaid by mail or express. Walter Bros., Fowhatan Point, O.

Buff, White Leghorns, S. C. R. I. Reds, Eggs 90c per 15; $1.50 per 30; $4.00 per 100. S. C. Black Minorcas, Mottled Anconas $1.00 per 15; $1.75 per 30; $5.00 per 100. Catalogue free. JOHN A. ROTH, Quakertown, Pa.

EGGS, 13, $1.00; 30, $2.00. Thoroughbred Rocks, Wyandottes, Reds, Hamburgs, Leghorns, 19 varieties. Also Brahmas, Orpingtons, Houdans, Campines. 35th year. Catalogue. S. K. MOHR, COOPERSBURG, PA.

60 Varieties Poultry, Turkeys, Geese, Ducks, Guineas, Bantams, Hares, Cavies, Pups, Stock, eggs low. Catalogue free. Pioneer Farm, Telford, Pa.

Day Old Chicks for sale. 10 Varieties. Strong, healthy hatched. Circular free. Old Honesty Hatchery, Dept. F, New Washington, O.

90 Varieties. Poultry, pigeons, dogs, ferrets, guinea pigs, hares etc., folder free. Colored descriptive 68-page book—10c. Bergey's Pet Farm, Telford, Pa.

SPECKLED SUSSEX. The bird of today. Send for circular. Eggs and chicks. Good winter layers. Howard L. Davis, Box 989, New Egypt, N. J.

MOTTLED ANCONAS blue bell strain. Baby chicks and hatching eggs.

GEO. K. ROWDISH, ESPERANCE, N. Y.

30 BEST BREEDS POULTRY. Stock and eggs. Low price. Big new illustrated circular free. See it. John E. Hostwole, Harrisonburg, Va.

Colony Brooding of Chicks

Rearing chickens artificially has always been the most difficult problem for farmers and poultrymen. They have said times out of number that they could hatch artificially all right, but that they failed when it came to rearing the chicks. To this class the Pennsylvania Department of Agriculture recommends the new, coal burning, colony or brooder stoves.

However, the Department would especially warn all prospective users of these stove brooders that they should be run in a building at least 12x16 or 14x16. That the building should have windows hung similar to those so commonly to be seen in dairy barns and that there should be plenty of such, for it is very important that the houses do not run above 60 degrees—use a thermometer to make sure—and that the hovers be kept warm. And lastly that the floor of the building and the ground outside on the south side be made exactly the same level so that the little chicks can weave in and out of the house all day long through the four foot wide, foot high exit and entrance hole. Give the chicks an all day chance to run in and out, rain or shine, after they are ten days to two weeks old.

With the development of efficient coal burning brooder stoves, the colony system of brooding chicks has come into great popularity among the poultrymen of New Jersey. Where two hundred or more chicks are to be brooded at one time, this system gives good satisfaction, both as a brooding device and as a labor saver. Flocks of from two to five hundred chicks can be accommodated under one hover, but best results are secured when the number in one flock does not exceed three hundred.

With proper management, the stove will require thorough shaking down and recoaling every 12 hours. These brooder stoves are self-regulating, and the thermostats and other regulating devices should be given good care. Improper methods of taking care of the stove will result in poor fires, and frequent going out. There is more danger from keeping too low a fire than from keeping one too hot, as the chicks regulate their own comfort by moving toward or away from the stove, and they are likely to crowd when the fires become low. After using the colony system of brooding for over three seasons, the poultry department of the New Jersey Agricultural Experiment Station reports that results obtained by this system compare favorably with those secured by other methods.

Don't crowd the brooders—it is far better to put 300 chicks under a mammoth hover and lose but 10 per cent. than to put in 500 and lose 40 per cent.

Colony house sanitation is as essential to good practices as milk to a baby.

SAVES BABY CHICKS

You can save every one of your baby chicks by giving a simple home solution that prevents and cures the deadly White Diarrhœa over night. Remember every baby chick you lose costs you 50c. You will be amazed and delighted with this scientific discovery which is called Reefer's Ready Relief and is given in the drinking water. A dollar's worth will last the whole season and save hundreds of your baby chicks. If you wish to try this wonderful chick saver, write E. J. Reefer, Poultry Expert, 4364 Reefer Bldg., Kansas City, Mo., who will send you a season's supply for $1.00 (prepaid). So confident is Mr. Reefer of the results, that a million dollar bank guarantees if you are not absolutely satisfied your $1.00 will be returned on request and the Ready Relief costs you nothing. Send a dollar today or ask Mr. Reefer for his free Poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

Worth While Suggestions

There is not a single thing about the poultry business that is not simple—if you make up your mind to know how.

It is cheaper to feed $2 wheat to chickens than $1 corn—there is more money in eggs than there is in corn.

If you are suffering from low fertility, build up your male birds a little; a warm mash, no matter how warm the weather may be for the next ten days or two weeks, with a teaspoonful of ground ginger to every 25 birds, once every third day for 9 days will work wonders.

Put that powdered lime you bought over the runs of the brooding ground of the youngsters, if you wish to kill the gape monster.

Notice how the hens are digging out dust holes? Of course you have. Notice the reason? Why certainly—the bugs are beginning to bite. Throw a handful of good insect powder in each hole; put another handful in each nest, spray every nook and corner, for there was never a race of warriors more insistently blood thirsty than these creeping, crawling fighters.

Lard or vaseline, a tablespoonful, a pinch of tobacco dust, snuff, well mixed and rubbed into the down on the top of the head, around the neck, under each wing joint and in the fluff will save many a chick.

For the older birds buy a nickel's worth of blue ointment, take a piece the size of a pea, rub it into the fluff around the vent and you have the solution to the eradication of hen lice on the birds. Spray the houses, including roosts, nests, cracks and corners.

Free range for the growing youngsters will make sturdier chicks and it will keep more of them alive.

Build your business first for yourself and never dispose of anything that you would not retain as a part of your structure. Culls go to market or remain at home for the table.

Reputation is easiest built on good service.

When you sell get a fair price for a good article—the sting of a sharp sale is always an open wound.

Watch out for lice and mites—the season for their activities is now on.

Geese, Grass, Greenbacks

(Continued from page 159)

little bran. I use but a pinch of bran, as too much is loosening to the bowels and may cause trouble. One-twentieth of the ration is the limit of the amount in which bran is used. Nettles are the best possible food for geese. They are so good that it pays to buy the seed or gather and plant it for the purpose of feeding to old and young. I use cheap cotton gloves in gathering nettles, cutting off, while still tender, a few inches above the ground, and chop very fine. They should be fed mixed with the grains while still fresh and juicy. I use nettles, if I have enough on hand, to form one-third of every ration.

While the mother and goslings are confined to the seeded plat, care is taken that summer-warm water is constantly before them. I provide a small pail for the old goose. This is fastened with five sticks to the ground, so that she cannot upset it, nor can the young get into it. I simply drive the stakes in and set the pail between. Alongside of this pail is a dish of whole grain—wheat, oats and barley—for feeding. This is for the use of the goose alone. The goslings have a V-shaped trough for their water, the sides of which are but 2 inches high and above the ground. Small slats nailed across the top of same prevent them from taking a bath. The grain mixture is fed on a flat board, laid on the ground. It has a small strip around the edge, so that the grain is not scattered off the ground, where it might sour and bring trouble if eaten. I always clean every board within twenty minutes after feeding, and wash every board once every other day with scalding water to keep it sweet. At the beginning I feed every four hours, but change this to three times per day within five or six days, or as soon as the goslings begin to eat well. You know, I have in the luxurious grass plat, with so much greens growing, a reserve supply where the birds can help themselves when hungry.

Hot sun and lazy, just-fed young goslings do not agree. Be sure they rest and digest their meals in the shade if the sun comes out hot. I provide a burlap screen for such days, that covers the whole confined area. When they are a few weeks old the danger is past, especially if they are out in the open. For the flock at liberty I provide, outside of the old barrel nest to which they may go for their night's rest, a few rain shelters, although most old geese disdain to seek them. These consist of two sets of boards nailed together in the shape of the letter A and set on the ground. Both sides are open. They should be set so that the prevailing rain storms face their sides.

After the brood has been given liberty to roam around at will, or been placed in some special pasture lot or fence corner, the pampered feeding discontinues. In the rain shelter just described I place a small trough of mixed grains—at the start and until the goslings are six weeks old—and after that of whole grains, to which they may go at will. Of course they must have drinking water if there is no brook or pond. This is always best given in a dish or pail set in between sticks driven in the ground. It should always be in the shade and renewed two or three times daily.

When is a gosling ready for the market? In every large city are fastidious people, folks who want the best and are willing to pay for it; who prefer so-called broiler goslings; that is, goslings eight to ten weeks old. I have a limited trade in such and get the flat rate of $2.50 apiece for birds at this age weighing around 8 or 9 pounds. As they sell generally in pairs to families, it is an object, although the same or an even better price could be had later in the year. Of course, these birds have always had grains along with their grass feeding. The main season for geese, however, begins with Thanksgiving and ends with New Year. The price depends altogether on the local market. One should get at least 25 cents a pound for a dressed bird, delivered. Thus a bird weighing 15 pounds, rather a low average, will bring $3.75. In addition to this I have the valuable feathers and famous goose down.

From my records of a recent year I take the following: I had two ganders and eight geese, Toulouse, all of them over four years old, as breeders; hatched 214 goslings; raised 194 and sold 194. The last 27 head were sold, killed and dressed just before New Year. The total receipts were $513.50. I took no account of the feed, and as a matter of fact one can raise a gosling to maturity, if the grass run is good, at an expense of less than 50 cents. Figuring it up, we find that I sold, on an average, the young geese for $2.69. It is admitted that a few trios were sold for breeding, which brought a higher price, and in that way increased the average. But, no matter, as long as I am able to get better than $2 per head from a flock, on the average, I think I am doing good, es-

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CHEAP, HATCHING EGGS Good stock; eggs per 15, $1.00; 50, $2.75; 100, $5.00. Barred Rocks, S. C. W. Leghorns. Also a few choice R. C. Red cockerels, $2.00 each. JOSEPH BITLER, LICKDALE, PA.

Barron Leghorns Barred White Rocks. Breeders $2 each. Chicks $12.00 per 100. Eggs $6.00 per 100, $1.50 per 15. Three hundred acres range, forty-five years in business. Circular. EASTERN SHORE NURSERIES, DENTON, MD.

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CHICKS Broiler, 6c each; S. C. White and Brown Leghorns, 7c each; B. P. Rocks and B. Minorcas, 8c each; Wyandottes and Reds, 10c each for June delivery. Only $1 required with order. Cat. free. Keystone Hatchery, Dept. 20, Richfield, Pa.

TURKEYS 100 head selected breeders for sale. Bronze, Narragansett, Bourbon Reds, Whites and Blacks. Grown on separate farms. Vigorous, healthy breeders, finest quality, reasonable prices. Write today. Chas. McClave, Box 5, New London, O.

EGGS from best 20 varieties thoroughbred poultry, Rocks, Wyan., Reds, Orp., Leg., Min., Brah., Ham., Anc., Hou., 15 eggs, $1.00; 50, $3.00; 100, $5.50. Catalog free. H. K. MOHR, Quakertown, Pa.

R. C. R. I. Reds Bred to lay. Blue ribbon winners Hagerstown, Wilmington, etc. Eggs $1.25 per 15 and up. Free booklet. W. G. Horner, Catalpa Poultry Farm, Gettysburg, Pa.

EGGS from birds hatched from "Youngs" best pens. No utility stock, strictly exhibition as my show record proves. Prices will surprise you. J. C. Thoman, Box A, Beaver Springs, Pa.

CHICKS 50,000 chicks for 1917. S. C. White and Brown Leghorns, Barred Rocks and broiler chicks, 7c each and up. Safe delivery guaranteed. Booklet free. Cyclone Hatchery, Box A, Richfield, Pa.

EGGS Mammoth Bronze Turkeys, Barred Plymouth Rocks. Send for circular.

G. W. Tilton & Son, R. D. 1, Claysville, Pa.

White Leghorn Eggs and Chicks. World's greatest winter laying strains. Get our prices before you buy. Nelson Bros., Grove City, Pa.

SPECIALTY BREEDER—High class Barred Rocks. Choice geese. Stock and eggs. Many pleased customers. Illus. catalog. E. B. Souder, Souderton, Pa.

Hatching Eggs, American-English. White Leghorns. Males 6½ to 7 lbs. Females 4½ to 5 lbs. Trap nested stock. H. F. BUCK, Dept. C, Tunkhannock, Pa.

White Holland Turkey Eggs

F. TUCKER, Merrynook, NEW BRUNSWICK, N. J.

WHITE WYANDOTTES Great winter layers; hatching eggs, $1.25 per 15. John S. Brenneman, Dept. 3, Lancaster, R. 7 Pa.

ROSE COMB RED AND WHITE ROCK chicks and eggs. Custom Hatching our specialty. E. M. CLYMER, Box F, Olney, Phila.

EGGS $3 per 15 from Barred Rock hens with certified records, mated to males from 255 egg hen. CLARENCE YOUNG, SWEETWATER, TENN.

Turkey Eggs Prepaid. M. Bronze, B. Reds and Narragansetts $3.50 per 12; Bird. Rk. C'rn. $1 per 15. Satisfaction guaranteed. C. A. Caldwell, R. 1, Jacobsburg, O.

"Alert" Anconas A 220 egg strain of hustling winners. Circular for the asking. H. M. BLAKE, HONESDALE, PA.

S. C. Black Minorcas and S. C. R. I. Reds bred to lay. Eggs, 15, $1.00; 100, $6.00. Cockerels, $2.00 each. Thos. E. Ebersole, Carrollton, Ohio.

Cyphher's strain S. C. W. Leghorns, 1 year old hens mated with cockerels. 50 eggs, $3; 100, $5; 500, $23. THOS. H. BARNS, Creston, Ohio.

EGGS, Black and White Langshans, Light and Dark Brahmas, B. P. Rock, Pekin Duck. White African Guineas, $1.25 per 15. Prepaid. M. H. MYERS, Edom, Va.

Wanted to hear from owner of farm or unimproved land for sale. O. O. MATTSON, 2918 Cedar Ave. Minneapolis, Minn.

EGGS $1.00 per 15; $2.00 per 40. From Brahmas Rocks, Reds. 20 Leghorn eggs, $1.00. Catalogue Free. S. G. BEALER, COOPERSBURG, PA.

pecially as long as the breeders keep up their vigor, hatching quality and getting older all the time, for, be it known, a goose improves, like good wine, with age. The young goose is unfit as a breeder; her eggs are few and infertile; as she gets older she gets into better days. Geese are unprofitable until they are at least three years old, although there may be exceptions. From this time on until they are twenty or more years old they are good producers I once had an African gander that was known to be 48 years old. He was a good breeder. In the old country it is the custom to give to the bride in the village a goose for a marriage present, and it is common to find this same old goose still doing business when the housewife celebrates her silver wedding.

What the careful, painstaking farmers found good in geese in Europe, what a few of us who have bred geese here, discovered to be in their favor, should be proof enough for the rest to at least give them a fair trial. One cannot make a mistake in having a few around.

Summarizing the good points of geese, I advise, from personal experience, their keeping, because,

1. Once mated they stay mated for life, and that means mated for dozens of years. A gander will take care of four geese and they will produce longer than any other feathered biped.

2. Geese are our best foragers. They will make a living from grass and greens, where other poultry will starve. To feed them costs but a minimum expense for grains.

3. Geese will improve the pastures in killing off buttercups and other weeds in order to improve it for dairy cows, whose milk and butter would otherwise be acrid and unsalable.

4. They will clean up the grasses along lane, yard—in short, the waste wherever it is more than a waste—a nuisance.

5. There is never a surplus of geese in the market. It's the wise farmer who anticipates the demand of the future.

6. Goose down is valuable at home or for sale; it is extremely satisfactory pay for picking the goose.

7. Geese bring the best possible all-around net returns, investment and care considered, that a farmer can have from a side line. Even if the boss himself does not have the time to look after them, it must be an exceptional wife or daughter who would not. As a rule, women love to care for them.

8. They are good watchmen. Better sell "Touser," the old collie, and leave it to the geese to protect your place at night. They will warn you at the approach of a stranger, man or animal, just as they once warned the soldiers in Rome.

9. Lastly, but not leastly, geese should be kept because they are one of the many strings that tie up the package called "success," for the farm. They make the farm pleasant—in variety there is spice. In keeping all that can be kept at a profit on the farm, and in harmony with the rest, we take advantage of our God-given opportunity to do well by ourselves, our family, our neighbors and our state. Every little bit more makes the future brighter, the road more even and life better. Geese belong to this category. Be sure and give them a thorough trial.

New York.

Tells Why Chicks Die

E. J. Reefer, poultry expert, of 436 Reefer Bldg., Kansas City, Mo., is giving away free a new book which tells of a simple home solution that raises 98 per cent. of all chicks hatched and cures white diarrhœa over night. All poultry raisers should write for this valuable free book.—Adv.

OUR EXPERIENCE POOL

All our readers are invited to contribute their experiences on the topics under discussion. $2.00 will be paid for the best, and $1.00 for the next best contribution, and 50c for each other article published. Contributions must be in our hands 15 days before date of issue.

TOPIC No. 1218, MAY 1.—How are you fixed for labor this season? Do you find it better to hire by the month or by the day, and what do you pay? Have you been compelled to change your plans on account of insufficient help, and if so what change have you made? What farm equipment have, or will you add this year to overcome these difficulties?

TOPIC No. 1219, MAY 15.—What machinery have you found essential to successfully handle the hay crop? Tell us in not more than 250 words what you consider the most important features of this annual hot-weather job.

TOPIC No. 1220, JUNE 1.—When cutting wheat do you haul it direct to barn, shock it or stack it in the field? How much can you cut in a day? Ever use a tractor to pull the binder or have a small engine to run it? What about putting covers over shocks in case of rain? Tell us in 250 words of any other methods used in getting this valuable crop under cover.

Topic No. 1217.—Time is coming to turn the cows out to pasture. Are you troubled at first with garlic flavor in the milk and how do you overcome it? How do you cool and care for the milk before it is shipped? What kind of pails do you milk into, and why?

E. C. B., W. Chester, Pa.—Our permanent meadow has a large amount of garlic in it and we are always troubled with it when we first turn the cows out. We separate our milk and sell the cream and it seems as if all the flavor goes into the cream and only a slight trace remains in the skimmed milk. The only remedy we have found is to bring the cows to the barn, the first two weeks, at least four hours before milking, and then carefully and quickly cool the cream as soon as separated.

We have a very cold spring located about 300 feet from our separator house. We make between 10 and 12 quarts of cream at a milking. We use pail handle cans holding just these amounts for delivering the cream, so place these cans under the cream spout of the separator. As soon as all the milk has gone through the machine we take the cream to the spring house and set the cans in the water. We stir it vigorously with a long-handled spoon until thoroughly cool and we are very careful to never put the lid on tight except when the can is in the wagon. The confectioner tells us that chocolate ice cream is the only kind which he can make out of garlicky cream without the flavor tasting.

As to the best kind of buckets to milk into, we think the heavy tinned ones, half covered over the top, are best. They must be perfectly smooth inside, so that there will be no cracks for bacteria to collect and so they will be easy to wash. We never use soap when washing the separator or dairy utensils, but plenty of cold and hot water and one of the dairy cleansers. A rack outside of our separator house gives the buckets, etc., a chance to get a good sun bath, which is a wonderful cleanser. After introducing the semi-covered buckets we could see a decided change in the cleanliness of our milk, although we always brushed the cows and wiped their udders before milking.

S. M. T., Chester, Pa.—The only way to have milk free from garlic is not to let it get into the milk. When we can plow a field late in the fall or during the winter we do not have much trouble eradicating garlic. Summer cultivation does not kill it, as garlic is not at all particular as to how it spends its summer vacation. I have seen a bunch of garlic tied around a fence post when in bloom, and when weather conditions were suitable in the fall it began to grow. As garlic comes much earlier than grass in the spring, we are able to reduce the quantity to a large extent by turning out the dry stock and calves before the milch cows. The young stock bite it off close to the ground and by the time it gets up again there is a large growth of grass, which the cows will choose instead of garlic. If the pasture does have a large amount of garlic in it the cows are let on for only a short time each day and placed in the stable three or four hours before milking time.

By having our milk cans sitting in cold water while we milk, and then removing them to the spring house as soon as filled, where we keep them in spring water until hauled away, we have no trouble in cooling and sending it away in good shape. If necessary, during the hottest weather we can attach a pump from the milking machine engine, thus forcing well water through a cooler, but we have not had to do this yet, as our spring water seldom gets above 50 F.

We use the regular cone-shaped buckets that come with the milking machine, and find them very satisfactory. We find that there is much less material left in the strainer cloth when we use the machine than with the most careful milking by hand.

S. R., Elmington, Va.—Early in the spring when my cows are turned on the fresh, tender grass they are, usually, so hungry for anything green that they nip every blade of tender green that comes in their way. The best method of avoiding the bad taste and odor in milk is to feed the cows more dry food, such as shipstuff, bran and oats—or silage where you have a silo—so that they will not be so eager to satisfy their excessive hunger on anything that comes in reach, and will not "fill up" on wild onions, etc. A cow kept well fed during the winter and then fed the same after she is turned on pasture, as she was fed before, and then careful cooling of the milk before putting it in closed vessels, are great aids to overcoming completely this taste in milk and butter.

I have never shipped any milk before straining and setting for an hour in a very cool place. I always ship my milk with cream in it, and before bottling an hour's cooling causes the cream to rise beautifully and much thicker than when risen in a warm temperature.

I always milk into well cleaned tin pails—the covered pails are excellent. I am extremely careful that the cow is brushed and then wiped with a damp cloth on the milking side, both body and udder; this eliminates all hair or dust. The milker's hands should be perfectly clean and dry. I never allow one bit of filth to get in the milk while milking. Fresh tin pails are more easily handled and easier to clean, that is why I prefer their use.

W. A. G., Vincennes, Ind.—We are not troubled here with any of the wild garlic, or any wild growths that give the milk a "garlicky" flavor. The change, though, from all dry feeding to pasture always, at first, gives the milk a flavor or taste bordering on a bad flavor. To correct such a condition, as soon as we turn on grass we give the cows a few light feeds of some one of the best cattle tonics. The milk in a few days becomes all right, but takes on rather a high color.

In this section of southeastern Indiana, the indications are very favorable this year for quite early pasture. The mild and open weather, and the frequent showers are already causing the grass to start. Those of us who are much experienced in turning our milch cows out on pasture long ago learned that if the cows are turned on the spring pastures before the grass has had growth enough so they can get enough to satisfy them, that both the cows and the pastures are much injured for some time. The milking is done in small vessels or broad-topped, low pails holding only about one gallon. It is then poured into larger pails, passing through a muslin cover. Before it is placed in the large cans for delivery it is strained again. By special care of the cows' udders, and cleanliness exercised by the milkers, but little foreign matter gets into the milk. The two filterings or strainings make it quite sanitary as to cleanliness.

S. S., Union Bridge, Md.—Three years ago this spring I started to ship milk to Baltimore. My meadow has quite a great deal of garlic in it, and when I turned on grass I did as I had been used to—leaving the cows out all day. The man I shipped to complained and told me I would have to quit unless I did something to kill the taste of garlic. I got busy. I turned my cows out to pasture just as soon as we were through milking in the morning, and brought them in at noon, would let them lie around in the barnyard until two hours before the evening milking, then put them in the stable and give them some short feed and hay. That proved a big help, but not a cure. Then I purchased an ærator, and as I have a natural flow of water through my dairy, that comes from overhead, I placed the cooler on the cement trough, attached the hose to the water pipes, also to the ærator. Thus I have running water through the cooler and the milk becomes within a few degrees as cool as the water and takes only a minute to cool a gallon. In case one has not the running water, placing ice in the ærator, or filling with cold water and stirring the water, will do. The cooling not only destroys the taste of garlic, but any other offensive odor that might be in it. The sooner the animal heat is gotten out of milk the longer it will keep. I have had milk to keep sweet for 48 hours and out of water most of the time, part of which it was exposed to the sun.

In regard to the vessels used in milking, we use partly covered milk buckets. When I began using them I did not like them, but after using them a while I realized their value, seeing the dirt collect on the covered part. If using an ordinary bucket this would have been in the milk, causing bacteria to a greater extent.

Oil Spraying Controls the Weed

Wild garlic has been reported to the Ohio Experiment Station from 78 counties in Ohio this year. Spraying with fuel oil from April 15 to May 1, before the plants begin to form heads, has been found by the Experiment Station most satisfactory to kill out this weed. The spray should be applied on a warm, calm day, about 75 gallons per acre being required. In Ohio 342 districts and 902 farmers troubled with this pest have been reported this year. When not controlled wild garlic becomes serious in grain fields and pastures. It is often erroneously called wild onion.

Canada Offers 160 Acres Land Free to Farm Hands

Bonus of Western Canada Land to Men Who Assist in Maintaining Needed Grain Production.

The demand for farm labor in Canada is so great that as an inducement to secure at once the necessary help required, Canada will **give one hundred and sixty acres of land free as a homestead** and allow the farm laborer, who flies on land, to apply the time he is working for other farmers as residence duties the same as if he had lived on the land he had applied for. This offer made only to men working on Canadian farms for at least 6 months during 1917, thus reducing the necessity of actual residence to 2 years instead of 3 years, as under usual conditions. This appeal for farm help is in no way connected with enlistment for military service but solely to secure farm laborers to increase agricultural output. A wonderful opportunity to earn good wages while securing a farm. Canadian Government will pay all fare over one cent per mile from St. Paul and Duluth to Canadian destination. Information as to low railway rates, etc., may be had on application to

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The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

MAY 1.—We have had a number of readers suggest the subject of house cleaning as an "Exchange" topic for discussion. We presume they want to know how to overcome it or lighten its burdens. Tell us in not more than 250 words how you meet this annual or semi-annual problem.

MAY 15.—During the hot weather what kind of a stove do you use for cooking and where is it located? How do you get hot water? What have you found the best way to keep a stove polished? Tell us in not over 250 words any unusual arrangements you have for doing summer cooking.

JUNE 1.—For home canning do you prefer tin or glass jars, and why? What things out of your own garden do you can? How large is your family and how many quarts do you can each year for home use? Tell us your method of canning one particular thing.

Get your contribution in early If it does not reach us at least 15 days before the date of issue, it will be too late.

What are you doing to make your children take a personal interest in the farm and farm life?

Mrs. S. K. K., Esperance, N. Y.—We have a farm of 200 acres of good land, an old-fashioned house, but painted and kept up outside and in, also well furnished and all used every day with the exception of some guest chambers.

We keep a herd of 40 cows, a number of sheep and hogs, and 500 fowls—100 belonging to each of our children, and 100 to us, all kept separately. Our house contains a piano, two violins, a mandolin, a guitar and a banjo, so you may conclude we are a musical family. Our sitting room table is covered with papers and magazines. Our house is thrown open to evening callers, or at any other time when we have the time to entertain them. We and the children go a great deal also, whenever we can spare the time. We have an auto, as well as horses.

This is the jolly part of our life, but we have something to do besides going and fun all the time, for we have to make our living. We have four children, ranging in age from 16 to 22—two boys and two girls. They have always been given a share in the farm and so paid for working. All but the youngest have been graduated from the high school near us, and the boys each have taken a course in an agricultural college. They are all at home and contented, for each, having a certain share, is doing well financially.

I would say the only way to hold them to farm life, in my opinion, is to have the parents prosperous, to make everything as pleasant as possible for them and to do as well, financially, as possible for them. It is very reasonable to expect that if they do not have any good times or are lacking in money, they will want to leave, and who can blame them?

M. G. B., E. Stroudsburg, Pa.—Every farm home should have a "den" or private room for the children. If the house is small the attic can be fitted up for this purpose. Their playthings, curios, etc., can be kept there, and parents should see that the children's duties allow ample time and opportunity for their enjoyment of the apartment set aside for them.

There should be a story hour in every home for the younger children, and a reading circle for the older members of the family, where each one takes part. The family council does much toward helping the boys and girls take a greater interest in the farm.

Provide vacations for the boy and girl. This may seem to sacrifice the interest of the work. Many farmers seem to think the children are for the sake of work. Are they, or is the work for the sake of the children?

Boys' and girls' clubs have been organized in each school district in our county. In the fall "Rural Life Day" is observed in each township. First, second and third prizes are awarded for the best corn, wheat, rye, oats, buckwheat, potatoes, all garden vegetables, sewing, bread, cake, pies, jelly, fowls, animals, etc. Prize winners are given the privilege of taking their produce to the county institute, where prizes are awarded by the banks of the county. Prizes are also given for the best essays on farm subjects.

For the summer we are planning to have school gardens, play festivals and cow and horse judging contests. Some time during April fifty of the boys and girls of the county are to receive pure-bred calves. At the end of two years there is to be a sale of these heifers and whatever they bring, above the original price, will go to the boy or girl who raised them.

Mrs. P. M. S., Ovenfork, Ky. — To make the children take a personal interest in the farm we make them feel that they are partners in our little "firm," and that the farm could not possibly be a success without the help of each child. They are never "made" to do things. We always politely ask if they can do a certain piece of work or go on an errand, and they fairly jump at the chance to help. They are never paid for work they do, unless we should otherwise have to hire some one else to do it. They gladly help with the housework and chores to get mamma to hear their lessons. Their waking hours are about equally divided between study, work and play.

They are given a share in all the garden crops they help to make and are allowed to sell their produce and spend the money as they wish, which I notice they never spend foolishly. Last summer I ordered five sittings of pure-bred R. I. Red eggs. The little girls were so much interested in them that I gave each a sitting and now they have one fine rooster and five pullets each. They are allowed to help when we are setting fine nursery stock and are given a few trees for their very own. They pick up apples, and pick berries and we let them sell part of them if we have more than we need. We have learned by experience that children like fruit, so have planted for ours quite a variety. We have strawberries, blackberries, raspberries, serviceberry, mulberry, plums, cherries, peaches, pears, apricots and apples.

Our children are small now and easily amused; with nice food and clothing, good books to read, and plenty of time for play they are happy. In our community no effort at all is made for keeping the young people contented with farm life. The boys drift away to the mines and the girls marry before they have half finished a common school education. But with all odds against us we believe we can keep our children at home.

Mrs. K. S. W., Tuscarora, N. Y.—To create in our children a genuine love for farm life we ourselves must be thoroughly alive to the advantages of our surroundings. We must appreciate not only our home and calling, but our neighors and our community in general. In the inevitable hours of weariness and discouragement we must guard our lips that no chance, to-be-regretted remark shall cause the seeds of discontent to spring in the hearts of the young folks. Undue homage is often paid to the success of our city friends, and their struggles and hardships wholly ignored. This creates a deep impression upon the children. To present a good appearance is normal and commendable. An attractive home, becoming and suitable clothing, a creditable turnout, be it car or carriage, are all within the rights of young and old, and to the young the lack of them amounts to misery.

The teaching of domestic art in our schools is a boon in the accomplishments of tasteful homes and dress at moderate expenditure. Delightful effects are produced with little money if one but knows how, and vice versa. Let the young people share in the planning of home, garden, crops, etc. A share in stock, poultry, bees, fruit—something all their own to profit by the income, will prove a strong factor in keeping them on the farm. Give them a season at a good agricultural school, if possible. A doctor, lawyer or dentist would reap little success as an apprentice alone. Is not farming as worthy of brain effort?

Raynster
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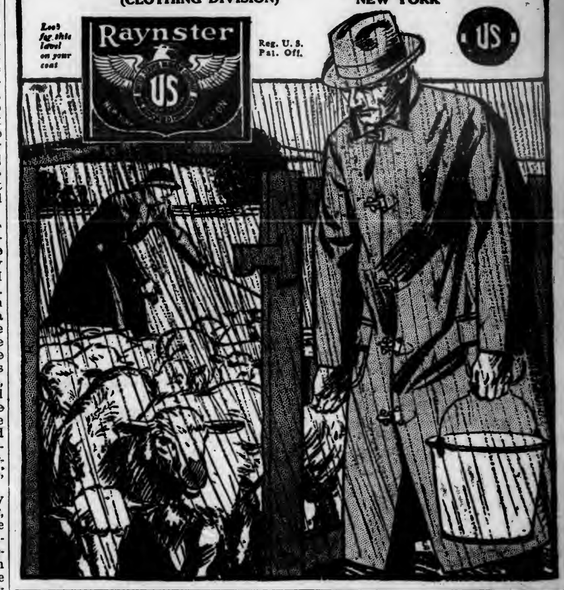

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A HOUSEHOLD NECESSITY

If they wish to try their wings in the city a trial is the best cure. Assure them of a warm welcome home, and ten to one the thought of the crocuses they planted, bursting the soil, or the ripening apples, will be stronger than the lure of the city.

The Grange is doing a great work here for the young folks, awakening interest in scientific methods and providing healthful amusement the year round, and cultivating community spirit in general.

Miss E. G., Enon Valley, Pa.—As a teacher in the public school life, I am constantly on the lookout for things that interest children of public school age. Our agriculture class is one opportunity that I have to emphasize the possibilities for young farmers of the present time. In this I take great pleasure, as I, myself, enjoy farm life and enjoy seeing others participate in it. Taking them as a group, I try to impress deeply upon their minds the subject of home gardening. Under this subject we must weave in the requirements of plant life and a careful study of destructive weeds. First, to recognize them when seen, and also the best methods for their destruction. Along the same line comes the subject of home flowers. In this I make an attempt to keep within the range of flowers that are easily cared for, so that good results will be obtained, and thus prevent discouragements. In our work this spring I sent for enough seeds, of various kinds, to supply each pupil. In my estimation, nothing seems to create interest quite so readily as giving the boy or girl some small article that they can call their own, to start with. Also profitable interest is obtained in the study of birds, and the protection due to them, along with the building of bird houses.

Our community is one of many social functions, of which the Grange proves to be one of the most interesting. We now have about two hundred members in our Grange. Many contests of corn growing, etc., are carried on, which is beneficial, and something in which both young and old may participate.

Mrs. R. C. McW., Homer City, Pa.—Why will our children leave the farm? There are no two cases where the same answer could be applied—different natures to deal with, different home environment, and that primitive life of the animal to be subdued and civilized, as it were. I believe from the time the children are able to toddle along to feed the chickens and pull up your choice plants in the garden you should give them a share in your work. How proudly they will speak of "my chicken," "my garden," etc., before they can speak plainly; as they grow older increase this interest. What boy is so proud as the one who can claim as his own a blue ribboned colt at the county fair? Or what daughter is more to be envied than one whose mother can say, "That is Mary's bread or cake," or "Mary raised these chickens or that heifer."

Do not bind the boys and girls at home; go with them, make one of a merry sledding party, or fill in at tennis. Don't get old and fogy. Act so they will proudly say: "Come, boys, I want you to meet my father" or "my mother." This comradeship wins half the battle.

Further, do not confine them to out of doors. In rainy weather or the long, cold winter months show your hospitality. If young folks do not find recreation at home you may be sure they will leave that home and find it elsewhere. Youth calls to youth the world over.

In our community the Grange is a great help in both a social and educational way to young and old. With our literary societies, oyster suppers and pie socials in winter, and picnics, corn roasts and outings in summer there is a never-ending source of enjoyment. The question I would ask is why should they go to the city?

Mrs. C. J., State College, Pa.—In order to have children take an interest in farm life I think the two most important things are, first, to make the home so pleasant that they will feel that there is no other place in the world where they can enjoy a like amount of good times; and second, to make them feel that they are indispensable to the life and work of the farm.

The first can be accomplished by having a cheerful, comfortably furnished house, no part of which is too good for use. Have magazines, books, pictures, music and games. A talking machine is a good entertainer, not only for the family, but when the neighbor's children come as well. If the records are judiciously selected it will help to instill a love for and appreciation of the best in music, as well as merely entertain.

The second can best be done by having some definite work for each child, for which they shall not only be responsible, but from which they shall derive the rewards. Of course, this will be aside from the daily chores which he or she is expected to contribute to the family work. But we all like to work with an end in view, and to feel that our work will really pay us.

In my community individuals are working along these lines. Last year the young people were invited to some central place, and overseen by an older person, for games and general good times. There are so many simple, jolly affairs, such as corn roasts, marshmallow toasts, etc., with games, songs and story telling for entertainment that it seems a pity that every community does not have at least one person who is interested enough in the young people to plan such things for them.

Mrs. M. G. F., Dryden, N. Y.—Our 11-year-old boy has one of the best corners of the garden for his own and raises vegetables for the school exhibits at the fair. He exhibited vegetables, school work, baskets, bird houses, etc., at our county fair and at a town fair last fall and won $26 worth of premiums. He also raised two barrels of Potato onion sets last year, for which he received $16. He has traps for fall and winter trapping. With his school work and lessons in music, the chores he helps with most of the time and all the extras he has under way, he is a very busy boy. He loves reading and we take care that he has a good assortment of nature books, books on pioneer life, hunting, scouting and the many kinds of roughing it that boys like. He has some nice pets, including a collie, and the use of a beautiful pony in winter. A little girl on a neighboring farm, to whom it belongs, only uses it in warm weather. It seems an ideal arrangement, as I believe he really enjoys it more than he would if he had it all the time.

Our boy had always lived in the city until two years ago. Now he has to be coaxed to go back to it for even a day. There are so many worth while things to do in the country, with a chance to enter into all the activities of the farm life, while in the city a boy's boundless energy is so bottled up for lack of safe outlets. We see that he has all the money that he rightly earns, and we are not too strict in saying how he shall spend it, though he is fast learning to make his bank account grow. I am sure that it is not just that the life suits this particular boy—other boy friends who visit him for days at a time seem to like it so much better than the city. The only thing we miss for him is the city schools, and we are hoping for better rural schools.

Mrs. S. M. J., Kentwood, La. — We have only one boy and he is a great lover of nature. Anything beautiful, a rosy cloud, a new flower, a rainbow, or a bright sunset never fails to call forth his admiration. Ever since he was a little tot he has had a garden which he has been permitted to plant and cultivate as he pleased. This has been enlarged each year as he has grown older, until now, at sixteen, he has about half an acre. He gets all the proceeds, which he spends as he likes. We have a home canning outfit and he and I put up all the vegetables we cannot sell profitably. I allow him a fair price for all his goods used at home.

Two years ago he bought a pair of I. R. ducks. From these he has raised quite a flock, besides having sold several dollars worth of breeding stock and eggs. He has a cheap ledger and is taught to keep a strict account of all he spends and makes. If we owned land he should have an orchard, would be permitted to select the varieties to plant and care for the trees, and keep his poultry in connection.

There is no neighborhood diversion of the right kind, not even a Sunday school within easy reach. When we feel the need of a holiday we go to the river for a picnic or to fish. Sometimes we get some of the neighbors to go with us, which increases the pleasure of the trip. I have made a confidant and companion of the boy. I work, study and plan to make home the most attractive place for him and have succeeded beyond my fondest expectation.

What Our Farm Women Ask and Answer

In reply to Mrs. C. S. W., Pennsylvania, Mrs. L. F., Tennessee, says that her home-made yeast makes good bread. Her method is: For one quart of yeast take six nice, large Irish potatoes, peel and boil. Remove the water and mash until entirely free from all lumps. Also boil one-third teacupful of hops in 1 pint of water; strain the water and pour it into the potatoes. Also add one-half cup of sugar, one-half cup of salt and one tablespoonful of flour, with enough water to dissolve these. Add to the potatoes and let all come to a boil. Then cool. When cool add one cake of fresh yeast. Put in a can or glass jar and put in a cool place. For six loaves of bread take one teacupful of yeast. Any one who carefully follows these directions is sure to have good yeast.

Mrs. E. C. M., Illinois, asks: "Will some one please tell me how hominy is made at home?"

Mrs. S. P. H., New Jersey, tells us, in reply to Mrs. W. H. P., New York, that she cleans ordinary straw hats this way: "After brushing it thoroughly I dip it into two quarts of boiling water in which I have put a tablespoonful of ammonia. When I remove the hat, after it has been thoroughly soaked, I cover it with a thin layer of sulphur. When the hat is dry I brush the sulphur off with a stiff brush and the hat appears fresh and new."

Evidently some of our readers are considering the prospects of earning money by turning some of the surplus farm products into cash. Won't some one who has had experience along these lines answer these questions for the benefit of all our readers?

Mrs. C. S. W., New Jersey, writes: "How much should I charge for my medium sized glasses of apple jelly? Would larger or smaller glasses sell better and is it right to ask the same price for all kinds of jelly?"

From Mrs. H. A. B., Maryland, we have a letter asking: "What kind of printed labels will it be best for me to buy for the canned goods I expect to put up for sale?"

Mrs. A. E. R., Delaware, asks us: "Does it pay to use glass jars when canning for market, and what kind? How much more do I receive than for the same quantity of my product in tin cans?"

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8271.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. Any of the pretty striped materials can be used to make this waist with collar and cuffs of plain goods.

8237.—Children's rompers. Cut in sizes 2, 4 and 6 years. Garment may be made with or without smocking and with round or square neck.

8255.—Misses' dress. Cut in sizes 16, 18 and 20 years. The waist and skirt are separate and the skirt is cut in one piece and is gathered at a slightly raised waist line.

8239.—Girls' dress. Cut in sizes 6 to 14 years. The dress has a separate waist and closes at the front; skirt is cut in two pieces.

8268.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. Linen, madras or crepe de chine can be used to make this waist.

8238.—Ladies' waist. Cut in sizes 36 to 44 inches bust measure. The apron has raglan sleeves in long or short length.

8245.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in four gores and has a slightly raised waist line.

8254.—Children's dress. Cut in sizes 4, 6, 8 and 10 years. The dress is cut in one piece and closes at the back.

8272.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in four gores and has a slightly raised waist line.

8263.—Ladies' dress. Cut in sizes 36 to 40 inches bust measure. The dress is cut in one piece and the sleeves may be long or short.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

Other People's Business

(Continued from page 158)

prised admiration. Persis in a fury was almost a handsome woman.

He went back to his chair, a trifle uncertain as to the next move. He had made a study of women, too, but this country dressmaker baffled him for the moment. Her heated defense of his picture would have suggested a conclusion flattering to his vanity had it not been for the incongruous fact that seemingly her anger was directed against himself. There was a piquant flavor to the situation gratifying to his epicure's taste.

"It's good of you to stand up for a fellow, Persis. You always were kind-hearted, I remember. But really isn't this stretching charity too far? Such a rube is meant to be laughed at. There's nothing else to do with him. And to think that he and I were one only—let's see, how many years has it been?"

"We won't talk about that picture any more."

He regarded her humorously through the haze of smoke. "And why not?"

"He's a friend of mine. I don't care to have him laughed at!"

"But you forget my relation to the gentleman, my dear Persis. If any one should be sensitive, it surely is I."

"You've nothing to do with him," Persis declared, biting off her words in peppery mouthfuls. "You're as much of a stranger to him as you are to me. We'll just let him alone. There's things enough to talk about, I should hope, without making fun of that poor boy."

"Suppose I give you one of my late photographs in exchange for the cherub with the curly locks."

"I don't want it."

Justin was a trifle taken aback. He had hardly made the offer before he had accused himself of indiscretion. To be sure Persis was taking a very proper attitude. She showed no inclination to presume on the sentimental phase of their former acquaintance. She had said distinctly that they were strangers. And yet it was as well to be guarded. The bluntness of her retort gave him an almost rueful conviction of the needlessness of caution.

The flame of Persis' anger had burned itself out almost immediately, but the red embers still glowed in her eyes, and her cheeks were hot. She changed the subject with no pretense at finesse: "You seen Minerva Leveridge yet?"

"I don't seem to recall any one of that name."

"She was Minerva Bacon, and she married Joe Leveridge, old Doctor Whitely's nephew. You must remember him. Quiet sort of boy with a cast in his eye."

"Oh, yes. I remember the fellow now. His name was Leveridge, was it?"

"Yes. He died six or seven years ago. He left Minerva comf'tably fixed, judging from the mourning she wore. When a widow's crepe veil reaches to her heels it's pretty sure her husband left her some life insurance. You been to the Sinclairs' yet?"

"Why, yes." Justin looked a little guilty. As a matter of fact he had found time to drop in to see Annabel more than once. "I met Mrs. Sinclair on the street near the hotel one afternoon, and she asked me to call."

"That's why she was in such a hurry for the net," thought Persis. Aloud she said: "Her Diantha is an awfully pretty girl, as much of a belle as ever her mother was."

"No? I haven't happened to see the girl, but it's hard to think of Mrs. Sinclair as the mother of a grown daughter."

Ware realized with amazement that he would not again be allowed to broach the subject of the photograph. He had that fondness for playing with fire which so frequently survives in the adults of both sexes, and he gave the conversation a semi-sentimental twist more than once, only to be brought back sharply to practicalities by the lady in gray. There was no doubt that Persis meant to be mistress of the situation.

"I shall see you very soon again," he said, as he shook hands for good night. He would probably have said this in any case, such consolatory assurances being instinctive with him, but for a wonder he meant it. He had looked forward to this meeting with reluctance and had only made the call because even his complacent conscience had assured him that to omit it would be inexcusable. And virtue had been unexpectedly rewarded. He had enjoyed himself. He wanted to call again.

"Good night," said Persis, and neglected to assure him of her pleasure in the anticipation of his speedy return. She withdrew her hand. "Good night," she repeated. And if she recalled their last parting in that very room, she was not sure whether the contrast was a ground for laughter or for tears.

CHAPTER XI.

'TWIXT THE CUP AND THE LIP.

The night following Justin Ware's visit, Persis slept as soundly as a tired child. It was not that the interview had relieved her apprehensions nor in any way set her mind at rest, but after prolonged uncertainty, even the realization of one's worst forebodings may come as a relief. She slept late and rose more weary than when she went to bed. Yet in spite of that numbing sense of lassitude which clung like weights to her limbs, and for all her unaccustomed aversion to the thought of work, she knew her battle was won. Never again would she watch and listen and strangle at their birth, poor futile prayers for some assurance that a man's heart was still hers.

As if some evil spell had been broken, she recalled with pangs of self-reproach various duties she had neglected, in her unwonted self-absorption. She had not even kept her promise to Doctor Ballard to see his obdurate patient. Persis realized how completely she had regained her poise when she chuckled over the plan which had suggested itself as she listened to Doctor Ballard's diagnosis of Mrs. Richards' ailment.

"I'm so kind of headachy and restless that my sewing's bound to be a fizzle. I'll run in to see Charlotte this afternoon. It's a shame I haven't been there before. Don't know what the doctor'll think of me."

Considering that she was merely planning a little friendly call on a sick neighbor, Persis made her toilet with surprising care. In putting up her hair she again selected Annabel Sinclair as a model. She donned the gray crepe, a startling innovation, for in Clematis to wear a new dress on week-days, for any occasion less important than a wedding or a funeral, argued constitutional extravagance. As a final step in her preparation she rubbed her cheeks violently with a rough crash towel, the resulting brilliant complexion successfully obliterating all traces of weariness, the flotsam and jetsam of anxious days and haunted nights. And then with a jauntiness remarkable under the circumstances, Persis departed, resolved by fair means or foul to distract the thoughts of Mrs. Nelson Richards from the occupancy of a reserved apartment in the Heavenly mansions.

Charlotte Richards had always been a pretty woman of that ethereal type of beauty that is not noticeably diminished by fragility. Persis, looking her over, estimated that the thirty pounds the doctor had credited her with losing had been appreciably increased since he had made his appeal for aid. At the same time, the dressmaker admitted with grudging admiration the effectiveness of the picture the invalid presented as she lay back in her rocking-chair, bright-colored pillows heaped about her, a slender figure in black, the wide blue eyes matched by the blue veins in the temples, and with violet shadows below. In the bright, prosaic little sitting-room she looked as out of place as a Raphael's cherub in a kindergarten, a creature unmistakably belonging to another sphere.

"Dear Persis," breathed Mrs. Richards, and extended a transparent hand. "You'll forgive my not getting up," she added gently.

"Don't mention it." Persis' ringing tones had a heartiness which seemed plebian contrasted with Mrs. Richards' subdued murmurs. "You look the picture of comfort in that big chair. I'd hate to have you disturb yourself."

The faintest imaginable shadow crossed the other's face.

"I have very little strength, Persis. Day by day I am growing weaker. But don't think I am complaining. I am quite happy as I lie here picturing the glories of the New Jerusalem."

"I've found that rare beef was the best thing in the world for that kind of thoughts," responded Persis. "I buy the round and scrape it. You can take it raw if it's ice cold, but I like it best made into a ball and just scorched on both sides, enough to heat it through."

The invalid's smile was distinctly superior.

"You are trying to encourage me, Persis, but you have nursed too many of the sick not to see that I'm very near the river. Earthly remedies are of no avail," declared Mrs. Richards, who had the constitutional incapacity of numberless people to speak of death and the hereafter, and yet remain simple and unaffected. "But I do not find the thought depressing. Far from it. My heart is light when I think of the joys that await me."

"I didn't know but on your husband's account you'd feel like making an effort," Mrs. Richards sighed.

"Poor Nelson! Yes, my heart bleeds when I think of Nelson left in his loneliness. But it won't be for long. He will soon follow me."

Persis elevated her brows.

"Well, no, Charlotte. Don't deceive yourself about that. Nelson will feel your going, and for a time he'll take on something terrible. But he won't die of it. He comes of good long-lived stock, Nelson does, and though he's no boy, he's likely got twenty-five or thirty years ahead of him. And that brings me around to what was in my mind when I came over."

She relapsed into silence, studying a figure in the carpet, and apparently not quite certain how to continue. "Well?" questioned Mrs. Richards, and for the first time during the interview there was a querulous note in her voice.

"It's about Nelson's future. Of course, as far as you're concerned, there's no reason to worry. There's some folks that are naturally constituted to enjoy Heaven, and there's others who seem to belong to this earth. Nelson's one sort and you're another." This time her pause was protracted.

"Well?" Mrs. Richards prompted feverishly. "Go on."

"I really don't know, Charlotte. Maybe I've been a little mite impulsive speaking out this way. Perhaps I'd better not say anything more."

"Anything more? You haven't said anything yet, as far as I can see," returned Mrs. Richards tartly. "Don't be mysterious, Persis."

"Well, for some days now, I've been deliberating opening up my mind to you. They do say that folks that are kind of on the border line between the two worlds, can see things plainer than other people. But I won't say another word unless I get your solemn promise that what I tell you don't go any further."

"Of course I shall respect your confidence, Persis," Mrs. Richards swallowed impatiently. "I always tell Nelson everything, but except for him—"

"But Nelson's the very last one I want to hear this. Never mind, Charlotte. I see it was a crazy idea, my coming over this afternoon. I don't know what got into me. We won't talk about it any more. Did those dahlias grow in your garden, Charlotte. They're the finest I've seen this year."

"Persis Dale, you certainly can be an aggravating woman when you try. What about Nelson?"

"Do you promise you'll never breathe a word to any soul alive, least of all to Nelson himself?"

Mrs. Richards hesitated. But curiosity was not altogether foreign to her saintly nature, and Persis' reluctance to impart the confidence naturally increased her desire to hear it. "I promise," she agreed, with an effort to keep the eagerness out of her voice.

"Well, then, this is what I was coming at. Of course I see that as you lie here you're bound to be thinking about Nelson and worrying over what's going to become of him while you're enjoying yourself on the other side."

"That is all arranged," Mrs. Richards interrupted. "His sister Hetty is coming to keep house for him."

"Hetty's no kind of companion for Nelson. He's a man who likes cheerful company, and Hetty's what I call a natural widow. You know some folks are born that way. They kind of hang crepe on everything they touch. Hetty drizzles tears as easy as a sponge."

"Well, really, Persis, as long as Nelson and I are satisfied with the arrangement I don't know as you have any call to trouble yourself."

Persis met the invalid's irritated protest with an air of disarming frankness.

"Of course you wouldn't see, and that's just what I'm coming at. I suppose Nelson has told you that he and I had a little boy and girl affair when we was both of us too young to know our own minds."

Mrs. Richards' incredulous gasp indicated with sufficient clearness that she had not been favored with her husband's

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POULTRY

Edited by F. V. L. TURNER

All letters, inquiries and requests in reference to poultry, should be addressed to the Poultry Editor of The Practical Farmer, Philadelphia, Pa.

Practical Poultry Talks

Hatch Every Egg in Sight

Don't delay. Make every effort to get every egg under ever hen and in every incubator. If you are an advertiser, raise all you can, even to crowding—these crowds will sell to the army of defense, of offense and the vast horde that will stay at home to make the wherewithal to supply those afield.

Already the Argentine Republic is placing a ban on exports that her own people may live; the meat situation is alarming; there is nothing like a semblance of supply to meet the home demand—goodness only knows what is going to happen to those of us here that prefer red meat to fricasse of chicken.

Always, in the days gone by, the majority of eaters likened chicken unto a rare dessert, only a once-in-a-while edible that came high—and it will come high as Congress declares war. When red war comes red meat will disappear; chicken will be listed as the piece de resistance and the dear public, the stay-at-homes who wish for peace, those who wish for war and those who accept it as inevitable, will pay the price.

Labor will be scarce and the farmer may not be able to raise all of the crops he would otherwise aim to; but labor, diverted to other channels of effort and endeavor, must be fed. Since "war is hell," and since "armies travel and fight on their stomachs," hell and food must run hand in hand. If all the red meat goes to the red war, to a million soldiers and five million clerks, over one hundred and six million other souls must have food; to feed these millions there will be no red meat; chicken, plain chicken, eggs for the babies, eggs for the wealthy, eggs or nothing for the once-were meat eaters, and chicken meat for all must come from the six million farms in these glorious United States, each spelled with a big capital for each letter of its name.

Times now, in this hour of necessary preparedness, must submit to the exigencies of the case and the fowls may roost on wagon wheels, on the back of the buggy body, on the seed drill, the plow handle and lay eggs in the fire-box of the threshing engine or the tractor, and naught may be said for or against, for biddie is but contributing her mite to the solidarity of our people to the Etats Unis.

But biddie cannot stop here; there will be sick, maimed and wounded soldiers, when either dying or recovering from illness or torn and battered members, who will need the life giving elements contained in a hen broth or a delicately prepared egg. And sick babies, the aged in poor health and sufferers from epidemics will relish good fresh eggs. Truly, the hen has arrived and the farmer is coming into his own. Far be it from us to take advantage of the country in its time of greatest straits, but farther be it from us not to take care of our own and wipe out the great middle influence that caused poverty, where the central disposal system has been employed, to thousands and thousands of worthy farmers throughout this broad land.

Truly, "eggs is eggs" and "hens is hens" are going to be the slogans of the food makers on our six million farms.

Again, farm labor is going to be scarce. Our women cannot till and harvest the crops that require man's brawn, but these good souls can raise fowls and help swell "that which is theirs," the richest harvest that was ever shorn from the hoary head of Dame Nature, the golden crop from hendom.

Put by the thought of hard times in this gilded land; wake up to the moment of perfect profit; let not the grass grow under the hen's feet while more chickens spell success. Go after the easier way and collect the golden toll that comes from necessity before the devious ways of the short and effortless middle way swallows the treasure laden stream.

Never before in the history of the feathered world has there been such a demand for hen products—in the fall the laying pullet will wear a diadem. Spring chickens are rapidly going to the carat rate and every effort is being made to corral, true cowboy style, every egg that is escaping the cold storage collectors. If you have more eggs than you can possibly hatch, put them in liquid glass; they will keep at least a year. If you are in a community that supports an ice plant, organize a cold storage warehouse company—eggs are not the only things that will fill its spaces and the ice plant will fall heir to an extension of its profit period. It is there, readers, everything we have proposed, and more. It is yours to get and it is up to you to get it. Go to it.

Ranging the Young Stock

From the brooder the youngsters go to the colony houses, where artificial methods are employed—if the hen is the foster mother the chicks grow apace, at least until the old lady forsakes them for the more pleasant and profitable business of laying eggs.

Range is next to feed in making growth, housing coming into place merely as a means to protection. Like the early bird that gathers the belated worm so the hen man that opens the colony houses early gets the greater growth of chicken. No matter how early or how late the chick goes to its nightly repose it is anxious to be up and stirring at the first crack of day.

On wet mornings it has always been told to us the young chick should be kept housed—perhaps dampness outside may affect the very tender and delicately constituted, but the mother hen will rear her young in any kind of weather just to prove that the wet foot bugaboo is really imagination.

A chicken's foot is not a sponge—even if it was it would not pass moisture to the vitals of the chick, already a greater portion of which is composed of water.

Young chicks cannot always survive rainstorms; in nature the hen protects them simply because these chicks are not protected with a coat of oily feathers and the warmth they maintain. All of us know that a feather bed is warmer (it conserves the heat better) than a shuck mattress. Again, the old hen can spare enough of her body heat to keep the chicks warm, to take off the chill occasioned by a soaking, and a colony house cannot.

Damp mornings here mean heavy dews and the left-over moisture from a midnight rain. Infinitely it is better to have the birds out exercising in a dew than to have them shivering, hungry and discontented in a bare colony house.

Range promotes every function of life incident to the natural state of the chicken, and this includes growth and health. No matter how well balanced or arranged your growing ration may be the youngsters unbalance and disarrange it without your consent. A worm here, a bug there and a blade of grass upsets the whole scheme of feeds and your youngster thrives despite your precision and care. Given range and plenty of feed at night (the day time ration should be always sparingly fed) means greater activity and more nearly natural conditions, better health and lower mortality. Let us suggest that those who are for the first time ranging a flock of youngsters visit a range practicing poultryman; spend a day with him—if you are not invited to do so, do so anyway, but give your imposed-upon host an opportunity to bite your crust at some near future date. His visit to you will change your viewpoint just as it changed it when you visited the said host, only it will change it more extensively.

What can be accomplished in this swap of visits will do both of you good, a whole world of it. Try it on the first ranger you hear of; most of them are big enough to furnish range to their flocks, therefore you can safely take advantage of their greatness.

Sour Milk for Laying Hens

Skim milk, preferably sour, is a most excellent substitute for beef scrap and will give good returns when fed to laying hens. Numerous experiments have shown that laying hens fed skim milk will double in egg production similar hens fed no form of animal protein.

According to F. D. Crooks, of the Pennsylvania State College school of agriculture, the exact value of sour milk as a source of protein, is difficult to state. Numerous feeding trials, however, place its value at 50 cents to $2 per 100 pounds.

Skim milk lowers the cost of producing a dozen eggs. On the farm it may mean the difference between profit and loss in connection with the farm flock. Sour milk has a medicinal effect also. It keeps hens in good health and helps prevent disease.

National cold storage regulation, instead of individual state control, will widen the gap between producer and cold storage; and it will be a gilded causeway for the eggmaker.

If the big-gun noise in Europe has the same effect on eggs that blasting and powder mill explosions do in this country the fowl race will be extinct on that side of the pond, should the war keep up two or three seasons more.

"If the egg is 60 per cent. water and liquid iron is fed the hen, can she carry around so much metal?" is asked by the scientific student.

Save the Little Chicks

"Last year I set my incubator the first of March, hatched 126 chicks and all but about 25 died with White Diarrhea. I set the incubator again but I was almost discouraged. Then I read about IOWITE Chick Tonic so thought I would try again, but I did not have any faith in the medicine. I sent to The Wight Co., Dept. 596, Lamoni, Ia., for a 50c. package and got it just two days before my second hatch came off. I used the medicine according to directions and to my surprise I never lost one of them. I raised over 600 chicks and I always talk IOWITE Chick Tonic to my neighbors, for I do know it is the best medicine I ever used and I have been trying to raise chickens all my life and am now 50 years old. Our druggist advertises it as the best chicken medicine on earth for White Diarrhea." Mrs. Ben Hawley, Ravenwood, Mo.—Adv.

Absolutely Dependable

That's the boast of the CORRECT Coal-Burning Hover

BUILT ON a correct patented principle—and built RIGHT. You can depend on it to raise your flocks, to reduce chick mortality, and give you big, sound birds. Costs only 2c. to 6c. a day to run. *PRICES, f.o.b. Factory,* 41-Inch CANOPY, $11.75 52-Inch CANOPY, $12.85 BACKED BY OUR GUARANTEE

Before you buy an inferior machine, write for FREE literature describing the Correct.

CORRECT HATCHER CO., Leesville, Carroll Co., O. Dept. 46

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PROPER FOOD FOR EVERY AGE—from baby chicks to laying hens or vigorous cockerels. Clean, pure, wholesome ingredients—make chickens thrive. BOOK FREE. AT YOUR DEALER'S OR TAYLOR BROS., 40 Market St., Camden, N. J.

Baby Chicks and Eggs

S. C. White Leghorns. Young and Barron strains. Fine stock and great layers; none better. Eggs, $1.25, 15; $5, 100. Chicks, $2 dozen, $12, 100; delivery guaranteed.

J. S. HAUPT FARM, EASTON, PA.

CHICKS that pay

Well hatched, well bred, from best heavy-egg strains of Reds, Rocks, Leghorns, Wyandottes, Cochins, etc. FREE BOOK tells how to make more money from poultry.

W. F. HILLPOT, Box 4, Frenchtown, N. J.

GEESE AND DUCKS.—Largest collection in the U. S. 500 head for sale. Large, vigorous farm grown, selected breeders, reasonable prices. Toulouse, Embdens, Brown Chinese, Africans. Ducks—Pekin, Rouen, Aylesburys, Colored Muscovys, White Muscovys, Cayugas, Indian Runners, Buffs and Calls. Every farmer should grow geese and ducks. They are money makers for you. Write today. Chas. McClave, Box 5, New London, Ohio.

YOU'LL FIND OUR WINTER LAYING WHITE LEGHORNS and our Free Catalog (Utility Facts) both Profitable and Interesting. Stock, Eggs and Chicks. Old Hickory Leghorn Yards, Box 7, Altoona, Pa.

BUTTERCUPS Alvinian strain, from 260 to 309-egg hens, 15 eggs, $2.00.
W. WYANDOTTES Regal strain, pen average 209, 15 eggs, $3; per 100, $6.00.
INDIA RUNNER DUCKS 13 eggs, $1.50; per 100, $6.00.
WOODVIEW FARM, Marlington, N. J.

Barred Rocks, White and Golden Wyandotte, Light Brahmas, Leghorns, Langshans, and Orpingtons. Farm grown healthy, vigorous stock. Price quality, reasonable prices. 500 head for sale. Buy your stock from a reliable breeder. Write today. Chas. McClave, Box 5, New London, Ohio.

QUALITY CHICKS Rocks, Reds, Anconas and Black Leghorns 15c., White Leghorns 13c. Satisfaction guaranteed. Circular. Delivery each week. E. R. Hummer & Co., R. D. B., Frenchtown, N.J.

TIFFANY'S Superior Chicks That Live Silver, White and Columbian Wyandottes, S. C. R. I. Reds, $18.00 per 100; $160 per 1000. Pekin and Rouen ducklings, 30 cents each; $25 per 100. Catalogue. Aldham Poultry Farm, R. 35, Phoenixville, Pa.

Turkey Eggs strictly fresh from large selected M. Bronze, W. Holland, Narragansett and Bourbon Reds, good as in America. $2.75 per 13 by express or parcel post, prepaid. Safe arrival guaranteed. N. M. Caldwell, Jacobsburg, Ohio.

Hatching Eggs Wyckoff Strain direct. The mortgage lifter; $1.00 per 15; $1.75 per 30; $5.00 per 100. All perfect eggs from best pens. J. M. CASE, GILBOA, N. Y.

CHICKS Eggs and Breeding Stock. All Leading Varieties. Order now. Safe arrival guaranteed. Booklet free. Houck Hatcheries, Box 20, Tiffin, Ohio.

FOR SALE. Pairs, trios, pens; all varieties. Rocks, Reds, Wyandottes, Leghorns, Orpingtons, Andalusians, Campines, Hamburgs, turkeys, ducks and geese. Prices low. RALPH H. RABY, R. 6, Millersburg, O.

EGGS M. Bronze, B. Red, Narragansett, W. Holland $3.75 per 12. B. P. Rocks, S. C. R. I. Red chicken eggs $1.25 per 15. All eggs prepaid by mail or express. Walter Bros., Powhatan Point, O.

Buff, White Leghorns, S. C. R. I. Reds, Eggs 90c per 15; $1.50 per 30; $4.00 per 100. S. C. Black Minorcas, Mottled Anconas $1.00 per 15; $1.75 per 30; $5.00 per 100. Catalogue free. JOHN A. ROTH, Quakertown, Pa.

EGGS, 12, $1.00; 30, $2.00. Thoroughbred Rocks, Wyandottes, Reds, Hamburgs, Leghorns, 19 varieties. Also Brahmas, Orpingtons, Houdans, Campines. 3019 year. Catalogue. S. K. MOHN, COOPERSBURG, PA.

60 Varieties Poultry. Turkeys, Geese, Ducks, Guineas, Bantams, Hares, Cavies, Pups, Stock, eggs low. Catalogue free. Pioneer Farm, Telford, Pa.

Day Old Chicks for sale. 10 Varieties. Strong, healthy hatched. Circular free. Old Honesty Hatchery, Dept. F, New Washington, O.

90 Varieties. Poultry, pigeons, dogs, ferrets, guinea pigs, hares etc., folder free. Colored descriptive 60-page book—10c. Bergey's Pet Farm, Telford, Pa.

SPECKLED SUSSEX. The bird of today. Send for circular. Eggs and chicks. Good winter layers. Howard L. Davis, Box 995, New Egypt, N. J.

MOTTLED ANCONAS blue bell strain. Baby chicks and hatching eggs. GEO. K. ROWDISH, ESPERANCE, N. Y.

30 BEST BREEDS POULTRY. Stock and eggs. Low price. Big new illustrated circular free. See it. John E. Heatwole, Harrisonburg, Va.

Colony Brooding of Chicks

Rearing chickens artificially has always been the most difficult problem for farmers and poultrymen. They have said times out of number that they could hatch artificially all right, but that they failed when it came to rearing the chicks. To this class the Pennsylvania Department of Agriculture recommends the new, coal burning, colony or brooder stoves.

However, the Department would especially warn all prospective users of these stove brooders that they should be run in a building at least 12x16 or 14x16. That the building should have windows hung similar to those so commonly to be seen in dairy barns and that there should be plenty of such, for it is very important that the houses do not run above 60 degrees—use a thermometer to make sure—and that the hovers be kept warm. And lastly that the floor of the building and the ground outside on the south side be made exactly the same level so that the little chicks can weave in and out of the house all day long through the four foot wide, foot high exit and entrance hole. Give the chicks an all day chance to run in and out, rain or shine, after they are ten days to two weeks old.

With the development of efficient coal burning brooder stoves, the colony system of brooding chicks has come into great popularity among the poultrymen of New Jersey. Where two hundred or more chicks are to be brooded at one time, this system gives good satisfaction, both as a brooding device and as a labor saver. Flocks of from two to five hundred chicks can be accommodated under one hover, but best results are secured when the number in one flock does not exceed three hundred.

With proper management, the stove will require thorough shaking down and recoaling every 12 hours. These brooder stoves are self-regulating, and the thermostats and other regulating devices should be given good care. Improper methods of taking care of the stove will result in poor fires, and frequent going out. There is more danger from keeping too low a fire than from keeping one too hot, as the chicks regulate their own comfort by moving toward or away from the stove, and they are likely to crowd when the fires become low. After using the colony system of brooding for over three seasons, the poultry department of the New Jersey Agricultural Experiment Station reports that results obtained by this system compare favorably with those secured by other methods.

Don't crowd the brooders—it is far better to put 300 chicks under a mammoth hover and lose but 10 per cent. than to put in 500 and lose 40 per cent.

Colony house sanitation is as essential to good practices as milk to a baby.

SAVES BABY CHICKS

You can save every one of your baby chicks by giving a simple home solution that prevents and cures the deadly White Diarrhœa over night. Remember every baby chick you lose costs you 50c. You will be amazed and delighted with this scientific discovery which is called Reefer's Ready Relief and is given in the drinking water. A dollar's worth will last the whole season and save hundreds of your baby chicks. If you wish to try this wonderful chick saver, write E. J. Reefer, Poultry Expert, 4364 Reefer Bldg., Kansas City, Mo., who will send you a season's supply for $1.00 (prepaid). So confident is Mr. Reefer of the results, that a million dollar bank guarantees if you are not absolutely satisfied your $1.00 will be returned on request and the Ready Relief costs you nothing. Send a dollar today or ask Mr. Reefer for his free Poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

Worth While Suggestions

There is not a single thing about the poultry business that is not simple—if you make up your mind to know how.

It is cheaper to feed $2 wheat to chickens than $1 corn—there is more money in eggs than there is in corn.

If you are suffering from low fertility, build up your male birds a little; a warm mash, no matter how warm the weather may be for the next ten days or two weeks, with a teaspoonful of ground ginger to every 25 birds, once every third day for 9 days will work wonders.

Put that powdered lime you bought over the runs of the brooding ground of the youngsters, if you wish to kill the gape monster.

Notice how the hens are digging out dust holes? Of course you have. Notice the reason? Why certainly—the bugs are beginning to bite. Throw a handful of good insect powder in each hole; put another handful in each nest, spray every nook and corner, for there was never a race of warriors more insistently blood thirsty than these creeping, crawling fighters.

Lard or vaseline, a tablespoonful, a pinch of tobacco dust, snuff, well mixed and rubbed into the down on the top of the head, around the neck, under each wing joint and in the fluff will save many a chick.

For the older birds buy a nickel's worth of blue ointment, take a piece the size of a pea, rub it into the fluff around the vent and you have the solution to the eradication of hen lice on the birds. Spray the houses, including roosts, nests, cracks and corners.

Free range for the growing youngsters will make sturdier chicks and it will keep more of them alive.

Build your business first for yourself and never dispose of anything that you would not retain as a part of your structure. Culls go to market or remain at home for the table.

Reputation is easiest built on good service.

When you sell get a fair price for a good article—the sting of a sharp sale is always an open wound.

Watch out for lice and mites—the season for their activities is now on.

Geese, Grass, Greenbacks

(Continued from page 159)

little bran. I use but a pinch of bran, as too much is loosening to the bowels and may cause trouble. One-twentieth of the ration is the limit of the amount in which bran is used. Nettles are the best possible food for geese. They are so good that it pays to buy the seed or gather and plant it for the purpose of feeding to old and young. I use cheap cotton gloves in gathering nettles, cutting off, while still tender, a few inches above the ground, and chop very fine. They should be fed mixed with the grains while still fresh and juicy. I use nettles, if I have enough on hand, to form one-third of every ration.

While the mother and goslings are confined to the seeded plat, care is taken that summer-warm water is constantly before them. I provide a small pail for the old goose. This is fastened with five sticks to the ground, so that she cannot upset it, nor can the young get into it. I simply drive the stakes in and set the pail between. Alongside of this pail is a dish of whole grain—wheat, oats and barley—for feeding. This is for the use of the goose alone. The goslings have a V-shaped trough for their water, the sides of which are but 2 inches high and above the ground. Small slats nailed across the top of same prevent them from taking a bath. The grain mixture is fed on a flat board, laid on the ground. It has a small strip around the edge, so that the grain is not scattered off the ground, where it might sour and bring trouble if eaten. I always clean every board within twenty minutes after feeding, and wash every board once every other day with scalding water to keep it sweet. At the beginning I feed every four hours, but change this to three times per day within five or six days, or as soon as the goslings begin to eat well. You know, I have in the luxurious grass plat, with so much greens growing, a reserve supply where the birds can help themselves when hungry.

Hot sun and lazy, just-fed young goslings do not agree. Be sure they rest and digest their meals in the shade if the sun comes out hot. I provide a burlap screen for such days, that covers the whole confined area. When they are a few weeks old the danger is past, especially if they are out in the open. For the flock at liberty I provide, outside of the old barrel nest to which they may go for their night's rest, a few rain shelters, although most old geese disdain to seek them. These consist of two sets of boards nailed together in the shape of the letter A and set on the ground. Both sides are open. They should be set so that the prevailing rain storms face their sides.

After the brood has been given liberty to roam around at will, or been placed in some special pasture lot or fence corner, the pampered feeding discontinues. In the rain shelter just described I place a small trough of mixed grains—at the start and until the goslings are six weeks old—and after that of whole grains, to which they may go at will. Of course they must have drinking water if there is no brook or pond. This is always best given in a dish or pail set in between sticks driven in the ground. It should always be in the shade and renewed two or three times daily.

When is a gosling ready for the market? In every large city are fastidious people, folks who want the best and are willing to pay for it; who prefer so-called broiler goslings; that is, goslings eight to ten weeks old. I have a limited trade in such and get the flat rate of $2.50 apiece for birds at this age weighing around 8 or 9 pounds. As they sell generally in pairs to families, it is an object, although the same or an even better price could be had later in the year. Of course, these birds have always had grains along with their grass feeding. The main season for geese, however, begins with Thanksgiving and ends with New Year. The price depends altogether on the local market. One should get at least 25 cents a pound for a dressed bird, delivered. Thus a bird weighing 15 pounds, rather a low average, will bring $3.75. In addition to this I have the valuable feathers and famous goose down.

From my records of a recent year I take the following: I had two ganders and eight geese, Toulouse, all of them over four years old, as breeders; hatched 214 goslings; raised 194 and sold 194. The last 27 head were sold, killed and dressed just before New Year. The total receipts were $513.50. I took no account of the feed, and as a matter of fact one can raise a gosling to maturity, if the grass run is good, at an expense of less than 50 cents. Figuring it up, we find that I sold, on an average, the young geese for $2.69. It is admitted that a few trios were sold for breeding, which brought a higher price, and in that way increased the average. But, no matter, as long as I am able to get better than $2 per head from a flock, on the average, I think I am doing good, es-

Beat it with a FISH BRAND REFLEX SLICKER $3.50

Keeps out all the wet

DEALERS EVERYWHERE

Waterproofs, Absolute, are Marked thus— TOWER'S FISH BRAND

A. J. TOWER CO. BOSTON

GREIDER'S FINE CATALOGUE, of fine bred poultry for 1917; 67 breeds illustrated and described; information on poultry, how to make hens lay, grow chicks—all facts. Low price on stock and hatching eggs. Incubators and brooders. 25 years in business. This book only 10 cts. Send today. B. H. GREIDER, Box 54, Rheems, Pa.

S. C. White Leghorns

Eggs for hatching, $6.00 per 100.

CHESTERBROOK FARMS, Berwyn, Pa.

CHEAP, HATCHING EGGS Good stock: eggs per 15, $1.00; 50, $2.75; 100, $5.00. Barred Rocks, S. C. W. Leghorns. Also a few choice R. C. Red cockerels. $2.00 each. JOSEPH MILLER, LICKDALE, PA.

Barron Leghorns Barred White Rocks. Breeders $2 each. Chicks $12.00 per 100. Eggs $6.00 per 100, $1.50 per 15. Three hundred acres range, forty-five years in business. Circular. EASTERN SHORE NURSERIES, DENTON, MD.

QUALITY WHITE ROCK EGGS FOR HATCHING

LESLIE BOYER, BURKITTSVILLE, MD.

CHICKS Broiler, 6c each; S. C. White and Brown Leghorns, 7c each; B. P. Rocks and B. Minorcas, 8c each; Wyandottes and Reds, 10c each for June delivery. Only $1 required with order. Cat. free. Keystone Hatchery, Dept. 20, Richfield, Pa.

TURKEYS 100 head selected breeders for sale. Bronze, Narragansett, Bourbon Reds, Whites and Blacks. Grown on separate farms. Vigorous, healthy breeders, finest quality, reasonable prices. Write today. Chas. McClave, Box 5, New London, O.

EGGS from best 20 varieties thoroughbred poultry, Rocks, Wyan., Reds, Orp., Leg., Min., Brah., Ham., Anc., Hou., 15 eggs, $1.00; 30, $3.00; 100, $5.50. Catalog free. H. K. MOHN, Quakertown, Pa.

R. C. R. I. Reds Bred to lay. Blue ribbon winners Hagerstown, Wilmington, etc. Eggs $1.25 per 15 and up. Free booklet. W. G. Horner, Catalpa Poultry Farm, Gettysburg, Pa.

EGGS from birds hatched from "Youngs" best pens. No utility stock, strictly exhibition as my show record proves. Prices will surprise you. J. C. Thoman, Box A, Beaver Springs, Pa.

CHICKS 50,000 chicks for 1917. S. C. White and Brown Leghorns, Barred Rocks and broiler chicks, 7c each and up. Safe delivery guaranteed. Booklet free. Cyclone Hatchery, Box A, Richfield, Pa.

EGGS Mammoth Bronze Turkeys, Barred Plymouth Rocks. Send for circular. G. W. Tilton & Son, R. D. 1, Claysville, Pa.

White Leghorn Eggs and Chicks. World's greatest winter laying strains. Get our prices before you buy. Nelson Bros., Grove City, Pa.

SPECIALTY BREEDER—High class Barred Rocks. Choice geese. Stock and eggs. Many pleased customers. Illus. catalog. E. B. Souder, Souderton, Pa.

Hatching Eggs. American-English. White Leghorns. Males 6½ to 7 lbs. Females 4½ to 5 lbs. Trap nested stock. H. F. RUCK, Dept. C, Tunkhannock, Pa.

White Holland Turkey Eggs

F. TUCKER, Merrymook, NEW BRUNSWICK, N. J.

WHITE WYANDOTTES Great winter layers; hatching eggs $1.25 per 15. John S. Brenneman, Dept. 3, Lancaster, R. 7 Pa.

ROSE COMB RED AND WHITE ROCK chicks and eggs. Custom Hatching our specialty. E. M. CLYMER, Box F, Olney, Phila.

EGGS $3 per 15 from Barred Rock hens with certified records, mated to males from 255 egg hen. CLARENCE YOUNG, SWEETWATER, TENN.

Turkey Eggs Prepaid. M. Bronze, B. Reds and Narragansetts $3.50 per 12; Bird. Rk. Ckrs. $1 per 15. Satisfaction guaranteed. C. A. Caldwell, R. 1, Jacobsburg, O.

"Alert" Ancona A 220 egg strain of hustling winners. Circular for the asking. H. M. BLAKE, HONESDALE, PA.

S. C. Black Minorca and S. C. R. I. Reds bred to lay. Eggs, 15, $1.00; 100, $5.00. Cockerels, $2.00 each. Thos. E. Ebersole, Carrollton, Ohio.

Cryphier's strain S. C. W. Leghorns, 1 year old hens mated with cockerels. 50 eggs, $3; 100, $5; 500, $23. THOS. H. BARNS, Creston, Ohio.

EGGS, Black and White Langshans, Light and Dark Brahmas, B. P. Rock, Pekin Duck, White African Guineas. $1.25 per 15. Prepaid. M. H. MYERS, Edom, Va.

Wanted to hear from owner of farm or unimproved land for sale. O. O. MATTSON, 2918 Cedar Ave. Minneapolis, Minn.

EGGS $1.00 per 15; $2.00 per 40. From Brahmas, Rocks, Reds. Big new 20 Leghorn eggs, $1.00. Catalogue Free. S. G. BEALER, COOPERSBURG, PA.

pecially as long as the breeders keep up their vigor, hatching quality and getting older all the time, for, be it known, a goose improves, like good wine, with age. The young goose is unfit as a breeder; her eggs are few and infertile; as she gets older she gets into better days. Geese are unprofitable until they are at least three years old, although there may be exceptions. From this time on until they are twenty or more years old they are good producers I once had an African gander that was known to be 48 years old. He was a good breeder. In the old country it is the custom to give to the bride in the village a goose for a marriage present, and it is common to find this same old goose still doing business when the housewife celebrates her silver wedding.

What the careful, painstaking farmers found good in geese in Europe, what a few of us who have bred geese here, discovered to be in their favor, should be proof enough for the rest to at least give them a fair trial. One cannot make a mistake in having a few around.

Summarizing the good points of geese, I advise, from personal experience, their keeping, because,

1. Once mated they stay mated for life, and that means mated for dozens of years. A gander will take care of four geese and they will produce longer than any other feathered biped.

2. Geese are our best foragers. They will make a living from grass and greens, where other poultry will starve. To feed them costs but a minimum expense for grains.

3. Geese will improve the pastures in killing off buttercups and other weeds in order to improve it for dairy cows, whose milk and butter would otherwise be acrid and unsalable.

4. They will clean up the grasses along lane, yard—in short, the waste wherever it is more than a waste—a nuisance.

5. There is never a surplus of geese in the market. It's the wise farmer who anticipates the demand of the future.

6. Goose down is valuable at home or for sale; it is extremely satisfactory pay for picking the goose.

7. Geese bring the best possible all-around net returns, investment and care considered, that a farmer can have from a side line. Even if the boss himself does not have the time to look after them, it must be an exceptional wife or daughter who would not. As a rule, women love to care for them.

8. They are good watchmen. Better sell "Touser," the old collie, and leave it to the geese to protect your place at night. They will warn you at the approach of a stranger, man or animal, just as they once warned the soldiers in Rome.

9. Lastly, but not leastly, geese should be kept because they are one of the many strings that tie up the package called "success," for the farm. They make the farm pleasant—in variety there is spice. In keeping all that can be kept at a profit on the farm, and in harmony with the rest, we take advantage of our God-given opportunity to do well by ourselves, our family, our neighbors and our state. Every little bit more makes the future brighter, the road more even and life better. Geese belong to this category. Be sure and give them a thorough trial.

New York.

Tells Why Chicks Die

E. J. Reefer, poultry expert, of 436 Reefer Bldg., Kansas City, Mo., is giving away free a new book which tells of a simple home solution that raises 98 per cent. of all chicks hatched and cures white diarrhoea over night. All poultry raisers should write for this valuable free book.—Adv.

OUR EXPERIENCE POOL

All our readers are invited to contribute their experiences on the topics under discussion. $2.00 will be paid for the best, and $1.00 for the next best contribution, and 50c for each other article published. Contributions must be in our hands 15 days before date of issue.

TOPIC NO. 1218, MAY 1.—How are you fixed for labor this season? Do you find it better to hire by the month or by the day, and what do you pay? Have you been compelled to change your plans on account of insufficient help, and if so what change have you made? What farm equipment have, or will you add this year to overcome these difficulties?

TOPIC NO. 1219, MAY 15.—What machinery have you found essential to successfully handle the hay crop? Tell us in not more than 250 words what you consider the most important features of this annual hot-weather job.

TOPIC NO. 1220, JUNE 1.—When cutting wheat do you haul it direct to barn, shock it or stack it in the field? How much can you cut in a day? Ever use a tractor to pull the binder or have a small engine to run it? What about putting covers over shocks in case of rain? Tell us in 250 words of any other methods used in getting this valuable crop under cover.

Topic No. 1217.—Time is coming to turn the cows out to pasture. Are you troubled at first with garlic flavor in the milk and how do you overcome it? How do you cool and care for the milk before it is shipped? What kind of pails do you milk into, and why?

E. C. B., W. Chester, Pa.—Our permanent meadow has a large amount of garlic in it and we are always troubled with it when we first turn the cows out. We separate our milk and sell the cream and it seems as if all the flavor goes into the cream and only a slight trace remains in the skimmed milk. The only remedy we have found is to bring the cows to the barn, the first two weeks, at least four hours before milking, and then carefully and quickly cool the cream as soon as separated.

We have a very cold spring located about 300 feet from our separator house. We make between 10 and 12 quarts of cream at a milking. We use pail handle cans holding just these amounts for delivering the cream, so place these cans under the cream spout of the separator. As soon as all the milk has gone through the machine we take the cream to the spring house and set the cans in the water. We stir it vigorously with a long-handled spoon until thoroughly cool and we are very careful to never put the lid on tight except when the can is in the wagon. The confectioner tells us that chocolate ice cream is the only kind which he can make out of garlicky cream without the flavor tasting.

As to the best kind of buckets to milk into, we think the heavy tinned ones, half covered over the top, are best. They must be perfectly smooth inside, so that there will be no cracks for bacteria to collect and so they will be easy to wash. We never use soap when washing the separator or dairy utensils, but plenty of cold and hot water and one of the dairy cleansers. A rack outside of our separator house gives the buckets, etc., a chance to get a good sun bath, which is a wonderful cleanser. After introducing the semi-covered buckets we could see a decided change in the cleanliness of our milk, although we always brushed the cows and wiped their udders before milking.

S. M. T., Chester, Pa.—The only way to have milk free from garlic is not to let it get into the milk. When we can plow a field late in the fall or during the winter we do not have much trouble eradicating garlic. Summer cultivation does not kill it, as garlic is not at all particular as to how it spends its summer vacation. I have seen a bunch of garlic tied around a fence post when in bloom, and when weather conditions were suitable in the fall it began to grow. As garlic comes much earlier than grass in the spring, we are able to reduce the quantity to a large extent by turning out the dry stock and calves before the milch cows. The young stock bite it off close to the ground and by the time it gets up again there is a large growth of grass, which the cows will choose instead of garlic. If the pasture does have a large amount of garlic in it the cows are let on for only a short time each day and placed in the stable three or four hours before milking time.

By having our milk cans sitting in cold water while we milk, and then removing them to the spring house as soon as filled, where we keep them in spring water until hauled away, we have no trouble in cooling and sending it away in good shape. If necessary, during the hottest weather we can attach a pump from the milking machine engine, thus forcing well water through a cooler, but we have not had to do this yet, as our spring water seldom gets above 50 F.

We use the regular cone-shaped buckets that come with the milking machine, and find them very satisfactory. We find that there is much less material left in the strainer cloth when we use the machine than with the most careful milking by hand.

S. R., Elmington, Va.—Early in the spring when my cows are turned on the fresh, tender grass they are, usually, so hungry for anything green that they nip every blade of tender green that comes in their way. The best method of avoiding the bad taste and odor in milk is to feed the cows more dry food, such as shipstuff, bran and oats—or silage where you have a silo—so that they will not be so eager to satisfy their excessive hunger on anything that comes in reach, and will not "fill up" on wild onions, etc. A cow kept well fed during the winter and then fed the same after she is turned on pasture, as she was fed before, and then careful cooling of the milk before putting it in closed vessels, are great aids to overcoming completely this taste in milk and butter.

I have never shipped any milk before straining and setting for an hour in a very cool place. I always ship my milk with cream in it, and before bottling an hour's cooling causes the cream to rise beautifully and much thicker than when risen in a warm temperature.

I always milk into well cleaned tin pails—the covered pails are excellent. I am extremely careful that the cow is brushed and then wiped with a damp cloth on the milking side, both body and udder; this eliminates all hair or dust. The milker's hands should be perfectly clean and dry. I never allow one bit of filth to get in the milk while milking. Fresh tin pails are more easily handled and easier to clean, that is why I prefer their use.

W. A. G., Vincennes, Ind.—We are not troubled here with any of the wild garlic, or any wild growths that give the milk a "garlicky" flavor. The change, though, from all dry feeding to pasture always, at first, gives the milk a flavor or taste bordering on a bad flavor. To correct such a condition, as soon as we turn on grass we give the cows a few light feeds of some one of the best cattle tonics. The milk in a few days becomes all right, but takes on rather a high color.

In this section of southeastern Indiana, the indications are very favorable this year for quite early pasture. The mild and open weather, and the frequent showers are already causing the grass to start. Those of us who are much experienced in turning our milch cows out on pasture long ago learned that if the cows are turned on the spring pastures before the grass has had growth enough so they can get enough to satisfy them, that both the cows and the pastures are much injured for some time. The milking is done in small vessels or broad-topped, low pails holding only about one gallon. It is then poured into larger pails, passing through a muslin cover. Before it is placed in the large cans for delivery it is strained again. By special care of the cows' udders, and cleanliness exercised by the milkers, but little foreign matter gets into the milk. The two filterings or strainings make it quite sanitary as to cleanliness.

S. S., Union Bridge, Md.—Three years ago this spring I started to ship milk to Baltimore. My meadow has quite a great deal of garlic in it, and when I turned on grass I did as I had been used to—leaving the cows out all day. The man I shipped to complained and told me I would have to quit unless I did something to kill the taste of garlic. I got busy. I turned my cows out to pasture just as soon as we were through milking in the morning, and brought them in at noon, would let them lie around in the barnyard until two hours before the evening milking, then put them in the stable and give them some short feed and hay. That proved a big help, but not a cure. Then I purchased an ærator, and as I have a natural flow of water through my dairy, that comes from overhead, I placed the cooler on the cement trough, attached the hose to the water pipes, also to the ærator. Thus I have running water through the cooler and the milk becomes within a few degrees as cool as the water and takes only a minute to cool a gallon. In case one has not the running water, placing ice in the ærator, or filling with cold water and stirring the water, will do. The cooling not only destroys the taste of garlic, but any other offensive odor that might be in it. The sooner the animal heat is gotten out of milk the longer it will keep. I have had milk to keep sweet for 48 hours and out of water most of the time, part of which it was exposed to the sun.

In regard to the vessels used in milking, we use partly covered milk buckets. When I began using them I did not like them, but after using them a while I realized their value, seeing the dirt collect on the covered part. If using an ordinary bucket this would have been in the milk, causing bacteria to a greater extent.

Oil Spraying Controls the Weed

Wild garlic has been reported to the Ohio Experiment Station from 78 counties in Ohio this year. Spraying with fuel oil from April 15 to May 1, before the plants begin to form heads, has been found by the Experiment Station most satisfactory to kill out this weed. The spray should be applied on a warm, calm day, about 75 gallons per acre being required. In Ohio 342 districts and 902 farmers troubled with this pest have been reported this year. When not controlled wild garlic becomes serious in grain fields and pastures. It is often erroneously called wild onion.

Canada Offers 160 Acres Land Free to Farm Hands

Bonus of Western Canada Land to Men Who Assist in Maintaining Needed Grain Production.

The demand for farm labor in Canada is so great that as an inducement to secure at once the necessary help required, Canada will **give one hundred and sixty acres of land free as a homestead** and allow the farm laborer, who files on land, to apply the time he is working for other farmers as residence duties the same as if he had lived on the land he had applied for. This offer made only to men working on Canadian farms for at least 6 months during 1917, thus reducing the necessity of actual residence to 2 years instead of 3 years, as under usual conditions. This appeal for farm help is in no way connected with enlistment for military service but solely to secure farm laborers to increase agricultural output. A wonderful opportunity to earn good wages while securing a farm. Canadian Government will pay all fare over one cent per mile from St. Paul and Duluth to Canadian destination. Information as to low railway rates, etc., may be had on application to

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The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

MAY 1.—We have had a number of readers suggest the subject of house cleaning as an "Exchange" topic for discussion. We presume they want to know how to overcome it or lighten its burdens. Tell us in not more than 250 words how you meet this annual or semi-annual problem.

MAY 15.—During the hot weather what kind of a stove do you use for cooking and where is it located? How do you get hot water? What have you found the best way to keep a stove polished? Tell us in not over 250 words any unusual arrangements you have for doing summer cooking.

JUNE 1.—For home canning do you prefer tin or glass jars, and why? What things out of your own garden do you can? How large is your family and how many quarts do you can each year for home use? Tell us your method of canning one particular thing.

Get your contribution in early If it does not reach us at least 15 days before the date of issue, it will be too late.

What are you doing to make your children take a personal interest in the farm and farm life?

Mrs. S. K. K., Esperance, N. Y.—We have a farm of 200 acres of good land, an old-fashioned house, but painted and kept up outside and in, also well furnished and all used every day with the exception of some guest chambers.

We keep a herd of 40 cows, a number of sheep and hogs, and 200 fowls—100 belonging to each of our children, and 100 to us, all kept separately. Our house contains a piano, two violins, a mandolin, a guitar and a banjo, so you may conclude we are a musical family. Our sitting room table is covered with papers and magazines. Our house is thrown open to evening callers, or at any other time when we have the time to entertain them. We and the children go a great deal also, whenever we can spare the time. We have an auto, as well as horses.

This is the jolly part of our life, but we have something to do besides going and fun all the time, for we have to make our living. We have four children, ranging in age from 16 to 22—two boys and two girls. They have always been given a share in the farm and so paid for working. All but the youngest have been graduated from the high school near us, and the boys each have taken a course in an agricultural college. They are all at home and contented, for each, having a certain share, is doing well financially.

I would say the only way to hold them to farm life, in my opinion, is to have the parents prosperous, to make everything as pleasant as possible for them and to do as well, financially, as possible for them. It is very reasonable to expect that if they do not have any good times or are lacking in money, they will want to leave, and who can blame them?

M. G. B., E. Stroudsburg, Pa.—Every farm home should have a "den" or private room for the children. If the house is small the attic can be fitted up for this purpose. Their playthings, curios, etc., can be kept there, and parents should see that the children's duties allow ample time and opportunity for their enjoyment of the apartment set aside for them.

There should be a story hour in every home for the younger children, and a reading circle for the older members of the family, where each one takes part. The family council does much toward helping the boys and girls take a greater interest in the farm.

Provide vacations for the boy and girl. This may seem to sacrifice the interest of the work. Many farmers seem to think the children are for the sake of work. Are they, or is the work for the sake of the children?

Boys' and girls' clubs have been organized in each school district in our county. In the fall "Rural Life Day" is observed in each township. First, second and third prizes are awarded for the best corn, wheat, rye, oats, buckwheat, potatoes, all garden vegetables, berries, bread, cake, pies, jelly, fowls, animals, etc. Prize winners are given the privilege of taking their produce to the county institute, where prizes are awarded by the banks of the county. Prizes are also given for the best essays on farm subjects.

For the summer we are planning to have school gardens, play festivals and cow and horse judging contests. Some time during April fifty of the boys and girls of the county are to receive pure-bred calves. At the end of two years there is to be a sale of these heifers and whatever they bring, above the original price, will go to the boy or girl who raised them.

Mrs. P. M. S., Ovenfork, Ky. — To make the children take a personal interest in the farm we make them feel that they are partners in our little "firm," and that the farm could not possibly be a success without the help of each child. They are never "made" to do things. We always politely ask if they can do a certain piece of work or go on an errand, and they fairly jump at the chance to help. They are never paid for work they do, unless we should otherwise have to hire some one else to do it. They gladly help with the housework and chores to get mamma to hear their lessons. Their waking hours are about equally divided between study, work and play.

They are given a share in all the garden crops they help to make and are allowed to sell their produce and spend the money as they wish, which I notice they never spend foolishly. Last summer I ordered five sittings of pure-bred R. I. Red eggs. The little girls were so much interested in them that I gave each a sitting and now they have one fine rooster and five pullets each. They are allowed to help when we are setting fine nursery stock and are given a few trees for their very own. They pick up apples, and pick berries and we let them sell part of them if we have more than we need. We have learned by experience that children like fruit, so have planted for ours quite a variety. We have strawberries, blackberries, raspberries, serviceberry, mulberry, plums, cherries, peaches, pears, apricots and apples.

Our children are small now and easily amused; with nice food and clothing, good books to read, and plenty of time for play they are happy. In our community no effort at all is made for keeping the young people contented with farm life. The boys drift away to the mines and the girls marry before they have half finished a course in common school education. But with all odds against us we believe we can keep our children at home.

Mrs. K. S. W., Tuscarora, N. Y.—To create in our children a genuine love for farm life we ourselves must be thoroughly alive to the advantages of our surroundings. We must appreciate not only our home and calling, but our neighbors and our community in general. In the inevitable hours of weariness and discouragement we must guard our lips that no chance, to-be-regretted remark shall cause the seeds of discontent to spring in the hearts of the young folks. Undue homage is often paid to the success of our city friends, and their struggles and hardships wholly ignored. This creates a deep impression upon the children. To present a good appearance is normal and commendable. An attractive home, becoming and suitable clothing, a creditable turnout, be it car or carriage, are all within the rights of young and old, and to the young the lack of them amounts to misery.

The teaching of domestic art in our schools is a boon in the accomplishments of tasteful homes and dress at moderate expenditure. Delightful effects are produced with little money if one but knows how, and vice versa. Let the young people share in the planning of home, garden, crops, etc. A share in stock, poultry, bees, fruit—something all their own to profit by the income, will prove a strong factor in keeping them on the farm. Give them a season at a good agricultural school, if possible. A doctor, lawyer or dentist would reap little success as an apprentice alone. Is not farming as worthy of brain effort?

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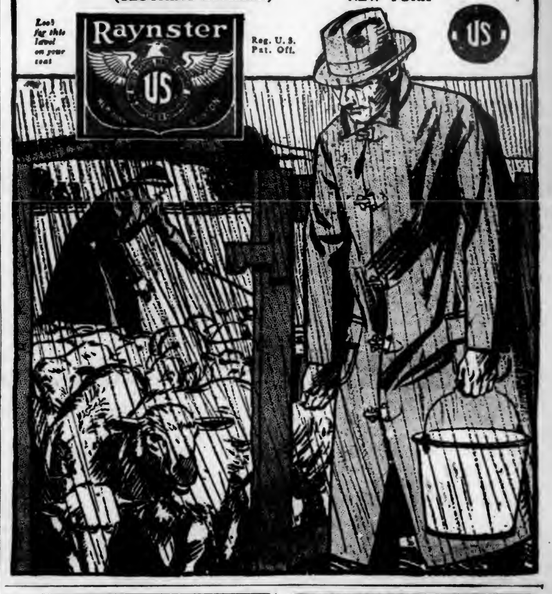

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A HOUSEHOLD NECESSITY

If they wish to try their wings in the city a trial is the best cure. Assure them of a warm welcome home, and ten to one the thought of the crocuses they planted, bursting the soil, or the ripening apples, will be stronger than the lure of the city.

The Grange is doing a great work here for the young folks, awakening interest in scientific methods and providing healthful amusement the year round, and cultivating community spirit in general.

Miss E. G., Enon Valley, Pa.—As a teacher in the public school life, I am constantly on the lookout for things that interest children of public school age. Our agriculture class is one opportunity that I have to emphasize the possibilities for young farmers of the present time. In this I take great pleasure, as I, myself, enjoy farm life and enjoy seeing others participate in it. Taking them as a group, I try to impress deeply upon their minds the subject of home gardening. Under this subject we must weave in the requirements of plant life and a careful study of destructive weeds. First, to recognize them when seen, and also the best methods for their destruction. Along the same line comes the subject of home flowers. In this I make an attempt to keep within the range of flowers that are easily cared for, so that good results will be obtained, and thus prevent discouragements. In our work this spring I sent for enough seeds, of various kinds, to supply each pupil. In my estimation, nothing seems to create interest quite so readily as giving the boy or girl some small article that they can call their own, to start with. Also profitable interest is obtained in the study of birds, and the protection due to them, along with the building of bird houses.

Our community is one of many social functions, of which the Grange proves to be one of the most interesting. We now have about two hundred members in our Grange. Many contests of corn growing, etc., are carried on, which is beneficial, and something in which both young and old may participate.

Mrs. R. C. McW., Homer City, Pa.—Why will our children leave the farm? There are no two cases where the same answer could be applied—different natures to deal with, different home environment, and that primitive life of the animal to be subdued and civilized, as it were. I believe from the time the children are able to toddle along to feed the chickens and pull up your choice plants in the garden you should give them a share in your work. How proudly they will speak of "my chicken," "my garden," etc., before they can speak plainly; as they grow older increase this interest. What boy is so proud as the one who can claim as his own a blue ribboned colt at the county fair? Or what daughter is more to be envied than one whose mother can say, "That is Mary's bread or cake," or "Mary raised these chickens or that heifer."

Do not bind the boys and girls at home; go with them, make one of a merry sledding party, or fill in at tennis. Don't get old and fogy. Act so they will proudly say: "Come, boys, I want you to meet my father" or "my mother." This comradeship wins half the battle.

Further, do not confine them to out of doors. In rainy weather or the long, cold winter months show your hospitality. If young folks do not find recreation at home you may be sure they will leave that home and find it elsewhere. Youth calls to youth the world over.

In our community the Grange is a great help in both a social and educational way to young and old. With our literary societies, oyster suppers and pie socials in winter, and picnics, corn roasts and outings in summer there is a never-ending source of enjoyment. The question I would ask is why should they go to the city?

Mrs. C. J., State College, Pa.—In order to have children take an interest in farm life I think the two most important things are, first, to make the home so pleasant that they will feel that there is no other place in the world where they can enjoy a like amount of good times; and second, to make them feel that they are indispensable to the life and work of the farm.

The first can be accomplished by having a cheerful, comfortably furnished house, no part of which is too good for use. Have magazines, books, pictures, music and games. A talking machine is a good entertainer, not only for the family, but when the neighbor's children come as well. If the records are judiciously selected it will help to instill a love for and appreciation of the best in music, as well as merely entertain.

The second can best be done by having some definite work for each child, for which they shall not only be responsible, but from which they shall derive the rewards. Of course, this will be aside from the daily chores which he or she is expected to contribute to the family work. But we all like to work with an end in view, and to feel that our work will really pay us.

In my community individuals are working along these lines. Last year the young people were invited to some central place, and overseen by an older person, for games and general good times. There are so many simple, jolly affairs, such as corn roasts, marshmallow toasts, etc., with games, songs and story telling for entertainment that it seems a pity that every community does not have at least one person who is interested enough in the young people to plan such things for them.

Mrs. M. G. F., Dryden, N. Y.—Our 11-year-old boy has one of the best corners of the garden for his own and raises vegetables for the school exhibits at the fair. He exhibited vegetables, school work, baskets, bird houses, etc., at our county fair and at a town fair last fall and won $26 worth of premiums. He also raised two barrels of Potato onion sets last year, for which he received $16. He has traps for fall and winter trapping. With his school work and lessons in music, the chores he helps with most of the time and all the extras he has under way, he is a very busy boy. He loves reading and we take care that he has a good assortment of nature books, books on pioneer life, hunting, scouting and the many kinds of roughing it that boys like. He has some nice pets, including a collie, and the use of a beautiful pony in winter. A little girl on a neighboring farm, to whom it belongs, only uses it in warm weather. It seems an ideal arrangement, as I believe he really enjoys it more than he would if he had it all the time.

Our boy had always lived in the city until two years ago. Now he has to be coaxed to go back to it for even a day. There are so many worth while things to do in the country, with a chance to enter into all the activities of the farm life, while in the city a boy's boundless energy is so bottled up for lack of safe outlets. We see that he has all the money that he rightly earns, and we are not too strict in saying how he shall spend it, though he is fast learning to make his bank account grow. I am sure that it is not just that the life suits this particular boy—other boy friends who visit him for days at a time seem to like it so much better than the city. The only thing we miss for him is the city schools, and we are hoping for better rural schools.

Mrs. S. M. J., Kentwood, La. — We have only one boy and he is a great lover of nature. Anything beautiful, a rosy cloud, a new flower, a rainbow, or a bright sunset never fails to call forth his admiration. Ever since he was a little tot he has had a garden which he has been permitted to plant and cultivate as he pleased. This has been enlarged each year as he has grown older, until now, at sixteen, he has about half an acre. He gets all the proceeds, which he spends as he likes. We have a home canning outfit and he and I put up all the vegetables we cannot sell profitably. I allow him a fair price for all his goods used at home.

Two years ago he bought a pair of I. R. ducks. From these he has raised quite a flock, besides having sold several dollars worth of breeding stock and eggs. He has a cheap ledger and is taught to keep a strict account of all he spends and makes. If we owned land he should have an orchard, would be permitted to select the varieties to plant and care for the trees, and keep his poultry in connection.

There is no neighborhood diversion of the right kind, not even a Sunday school within easy reach. When we feel the need of a holiday we go to the river for a picnic or to fish. Sometimes we get some of the neighbors to go with us, which increases the pleasure of the trip. I have made a confidant and companion of the boy. I work, study and plan to make home the most attractive place for him and have succeeded beyond my fondest expectation.

What Our Farm Women Ask and Answer

In reply to Mrs. C. S. W., Pennsylvania, Mrs. L. F., Tennessee, says that her home-made yeast makes good bread. Her method is: For one quart of yeast take six nice, large Irish potatoes, peel and boil. Remove the water and mash until entirely free from all lumps. Also boil one-third teacupful of hops in 1 pint of water; strain the water and pour it into the potatoes. Also add one-half cup of sugar, one-half cup of salt and one tablespoonful of flour, with enough water to dissolve these. Add to the potatoes and let all come to a boil. Then cool. When cool add one cake of fresh yeast. Put in a can or glass jar and put in a cool place. For six loaves of bread take one teacupful of yeast. Any one who carefully follows these directions is sure to have good yeast.

Mrs. E. C. M., Illinois, asks: "Will some one please tell me how hominy is made at home?"

Mrs. S. P. H., New Jersey, tells us, in reply to Mrs. W. H. P., New York, that she cleans ordinary straw hats this way: "After brushing it thoroughly I dip it into two quarts of boiling water in which I have put a tablespoonful of ammonia. When I remove the hat, after it has been thoroughly soaked, I cover it with a thin layer of sulphur. When the hat is dry I brush the sulphur off with a stiff brush and the hat appears fresh and new."

Evidently some of our readers are considering the prospects of earning money by turning some of the surplus farm products into cash. Won't some one who has had experience along these lines answer these questions for the benefit of all our readers?

Mrs. C. S. W., New Jersey, writes: "How much should I charge for my medium sized glasses of apple jelly? Would larger or smaller glasses sell better and is it right to ask the same price for all kinds of jelly?"

From Mrs. H. A. B., Maryland, we have a letter asking: "What kind of printed labels will it be best for me to buy for the canned goods I expect to put up for sale?"

Mrs. A. E. R., Delaware, asks us: "Does it pay to use glass jars when canning for market, and what kind? How much more do I receive than for the same quantity of my product in tin cans?"

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8271.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. Any of the pretty striped materials can be used to make this waist with collar and cuffs of plain goods.

8237.—Children's rompers. Cut in sizes 2, 4 and 6 years. Garment may be made with or without smocking and with round or square neck.

8255.—Misses' dress. Cut in sizes 16, 18 and 20 years. The waist and skirt are separate and the skirt is cut in one piece and is gathered at a slightly raised waist line.

8269.—Girls' dress. Cut in sizes 6 to 14 years. The dress has a separate waist and closes at the front; skirt is cut in two pieces.

8268.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. Linen, madras or crepe de chine can be used to make this waist.

8238.—Ladies' waist. Cut in sizes 36 to 44 inches bust measure. The apron has raglan sleeves in long or short length.

8245.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in four gores and has a slightly raised waist line.

8254.—Children's dress. Cut in sizes 4, 6, 8 and 10 years. The dress is cut in one piece and closes at the back.

8272.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in four gores and has a slightly raised waist line.

8263.—Ladies' dress. Cut in sizes 36 to 40 inches bust measure. The dress is cut in one piece and the sleeves may be long or short.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

Other People's Business

(Continued from page 158)

prised admiration. Persis in a fury was almost a handsome woman.

He went back to his chair, a trifle uncertain as to the next move. He had made a study of women, too, but this country dressmaker baffled him for the moment. Her heated defense of his picture would have suggested a conclusion flattering to his vanity had it not been for the incongruous fact that seemingly her anger was directed against himself. There was a piquant flavor to the situation gratifying to his epicure's taste.

"It's good of you to stand up for a fellow, Persis. You always were kind-hearted, I remember. But really isn't this stretching charity too far? Such a rube is meant to be laughed at. There's nothing else to do with him. And to think that he and I were one only—let's see, how many years has it been?"

"We won't talk about that picture any more."

He regarded her humorously through the haze of smoke. "And why not?"

"He's a friend of mine. I don't care to have him laughed at!"

"But you forget my relation to the gentleman, my dear Persis. If any one should be sensitive, it surely is I."

"You've nothing to do with him," Persis declared, biting off her words in peppery mouthfuls. "You're as much of a stranger to him as you are to me. We'll just let him alone. There's things enough to talk about, I should hope, without making fun of that poor boy."

"Suppose I give you one of my late photographs in exchange for the cherub with the curly locks."

"I don't want it."

Justin was a trifle taken aback. He had hardly made the offer before he had accused himself of indiscretion. To be sure Persis was taking a very proper attitude. She showed no inclination to presume on the sentimental phase of their former acquaintance. She had said distinctly that they were strangers. And yet it was as well to be guarded. The bluntness of her retort gave him an almost rueful conviction of the needlessness of caution.

The flame of Persis' anger had burned itself out almost immediately, but the red embers still glowed in her eyes, and her cheeks were hot. She changed the subject with no pretense at finesse: "You seen Minerva Leveridge yet?"

"I don't seem to recall any one of that name."

"She was Minerva Bacon, and she married Joe Leveridge, old Doctor Whitely's nephew. You must remember him. Quiet sort of boy with a cast in his eye."

"Oh, yes. I remember the fellow now. His name was Leveridge, was it?"

"Yes. He died six or seven years ago. He left Minerva comf'tably fixed, judging from the mourning she wore. When a widow's crepe veil reaches to her heels it's pretty sure her husband left her some life insurance. You been to the Sinclairs' yet?"

"Why, yes." Justin looked a little guilty. As a matter of fact he had found time to drop in to see Annabel more than once. "I met Mrs. Sinclair on the street near the hotel one afternoon, and she asked me to call."

"That's why she was in such a hurry for the net," thought Persis. Aloud she said: "Her Diantha is an awfully pretty girl, as much of a belle as ever her mother was."

"No? I haven't happened to see the girl, but it's hard to think of Mrs. Sinclair as the mother of a grown daughter."

Ware realized with amazement that he would not again be allowed to broach the subject of the photograph. He had that fondness for playing with fire which so frequently survives in the adults of both sexes, and he gave the conversation a semi-sentimental twist more than once, only to be brought back sharply to practicalities by the lady in gray. There was no doubt that Persis meant to be mistress of the situation.

"I shall see you very soon again," he said, as he shook hands for good night. He would probably have said this in any case, such consolatory assurances being instinctive with him, but for a wonder he meant it. He had looked forward to this meeting with reluctance and had only made the call because even his complacent conscience had assured him that to omit it would be inexcusable. And virtue had been unexpectedly rewarded. He had enjoyed himself. He wanted to call again.

"Good night," said Persis, and neglected to assure him of her pleasure in the anticipation of his speedy return. She withdrew her hand. "Good night," she repeated. And if she recalled their last parting in that very room, she was not sure whether the contrast was a ground for laughter or for tears.

CHAPTER XI.

'TWIXT THE CUP AND THE LIP.

The night following Justin Ware's visit, Persis slept as soundly as a tired child. It was not that the interview had relieved her apprehensions nor in any way set her mind at rest, but after prolonged uncertainty, even the realization of one's worst forebodings may come as a relief. She slept late and rose more weary than when she went to bed. Yet in spite of that numbing sense of lassitude which clung like weights to her limbs, and for all her unaccustomed aversion to the thought of work, she knew her battle was won. Never again would she watch and listen and strangle at their birth, poor futile prayers for some assurance that a man's heart was still hers.

As if some evil spell had been broken, she recalled with pangs of self-reproach various duties she had neglected, in her unwonted self-absorption. She had not even kept her promise to Doctor Ballard to see his obdurate patient. Persis realized how completely she had regained her poise when she chuckled over the plan which had suggested itself as she listened to Doctor Ballard's diagnosis of Mrs. Richards' ailment.

"I'm so kind of headachy and restless that my sewing's bound to be a fizzle. I'll run in to see Charlotte this afternoon. It's a shame I haven't been there before. Don't know what the doctor'll think of me."

Considering that she was merely planning a little friendly call on a sick neighbor, Persis made her toilet with surprising care. In putting up her hair she again selected Annabel Sinclair as a model. She donned the gray crepe, a startling innovation, for in Clematis to wear a new dress on week-days, for any occasion less important than a wedding or a funeral, argued constitutional extravagance. As a final step in her preparation she rubbed her cheeks violently with a rough crash towel, the resulting brilliant complexion successfully obliterating all traces of weariness, the flotsam and jetsam of anxious days and haunted nights. And then with a jauntiness remarkable under the circumstances, Persis departed, resolved by fair means or foul to distract the thoughts of Mrs. Nelson Richards from the occupancy of a reserved apartment in the Heavenly mansions.

Charlotte Richards had always been a pretty woman of that ethereal type of beauty that is not noticeably diminished by fragility. Persis, looking her over, estimated that the thirty pounds the doctor had credited her with losing had been appreciably increased since he had made his appeal for aid. At the same time, the dressmaker admitted with grudging admiration the effectiveness of the picture the invalid presented as she lay back in her rocking-chair, bright-colored pillows heaped about her, a slender figure in black, the wide blue eyes matched by the blue veins in the temples, and with violet shadows below. In the bright, prosaic little sitting-room she looked as out of place as a Raphael's cherub in a kindergarten, a creature unmistakably belonging to another sphere.

"Dear Persis," breathed Mrs. Richards, and extended a transparent hand. "You'll forgive my not getting up," she added gently.

"Don't mention it." Persis' ringing tones had a heartiness which seemed plebian contrasted with Mrs. Richards' subdued murmurs. "You look the picture of comfort in that big chair. I'd hate to have you disturb yourself."

The faintest imaginable shadow crossed the other's face.

"I have very little strength, Persis. Day by day I am growing weaker. But don't think I am complaining. I am quite happy as I lie here picturing the glories of the New Jerusalem."

"I've found that rare beef was the best thing in the world for that kind of thoughts," responded Persis. "I buy the round and scrape it. You can take it raw if it's ice cold, but I like it best made into a ball and just scorched on both sides, enough to heat it through."

The invalid's smile was distinctly superior.

"You are trying to encourage me, Persis, but you have nursed too many of the sick not to see that I'm very near the river. Earthly remedies are of no avail," declared Mrs. Richards, who had the constitutional incapacity of numberless people to speak of death and the hereafter, and yet remain simple and unaffected. "But I do not find the thought depressing. Far from it. My heart is light when I think of the joys that await me."

"I didn't know but on your husband's account you'd feel like making an effort."

Mrs. Richards sighed.

"Poor Nelson! Yes, my heart bleeds when I think of Nelson left in his loneliness. But it won't be for long. He will soon follow me."

Persis elevated her brows.

"Well, no, Charlotte. Don't deceive yourself about that. Nelson will feel your going, and for a time he'll take on something terrible. But he won't die of it. He comes of good long-lived stock, Nelson does, and though he's no boy, he's likely got twenty-five or thirty years ahead of him. And that brings me around to what was in my mind when I came over."

She relapsed into silence, studying a figure in the carpet, and apparently not quite certain how to continue. "Well?" questioned Mrs. Richards, and for the first time during the interview there was a querulous note in her voice.

"It's about Nelson's future. Of course, as far as you're concerned, there's no reason to worry. There's some folks that are naturally constituted to enjoy Heaven, and there's others who seem to belong to this earth. Nelson's one sort and you're another." This time her pause was protracted.

"Well?" Mrs. Richards prompted feverishly. "Go on."

"I really don't know, Charlotte. Maybe I've been a little mite impulsive speaking out this way. Perhaps I'd better not say anything more."

"Anything more? You haven't said anything yet, as far as I can see," returned Mrs. Richards tartly. "Don't be mysterious, Persis."

"Well, for some days now, I've been deliberating opening up my mind to you. They do say that folks that are kind of on the border line between the two worlds, can see things plainer than other people. But I won't say another word unless I get your solemn promise that what I tell you don't go any further."

"Of course I shall respect your confidence, Persis." Mrs. Richards swallowed impatiently. "I always tell Nelson everything, but except for him—"

"But Nelson's the very last one I want to hear this. Never mind, Charlotte. I see it was a crazy idea, my coming over this afternoon. I don't know what got into me. We won't talk about it any more. Did those dahlias grow in your garden, Charlotte. They're the finest I've seen this year."

"Persis Dale, you certainly can be an aggravating woman when you try. What about Nelson?"

"Do you promise you'll never breathe a word to any soul alive, least of all to Nelson himself?"

Mrs. Richards hesitated. But curiosity was not altogether foreign to her saintly nature, and Persis' reluctance to impart the confidence naturally increased her desire to hear it. "I promise," she agreed, with an effort to keep the eagerness out of her voice.

"Well, then, this is what I was coming at. Of course I see that as you lie here you're bound to be thinking about Nelson and worrying over what's going to become of him while you're enjoying yourself on the other side."

"That is all arranged," Mrs. Richards interrupted. "His sister Hetty is coming to keep house for him."

"Hetty's no kind of companion for Nelson. He's a man who likes cheerful company, and Hetty's what I call a natural widow. You know some folks are born that way. They kind of hang crepe on everything they touch. Hetty drizzles tears as easy as a sponge."

"Well, really, Persis, as long as Nelson and I are satisfied with the arrangement I don't know as you have any call to trouble yourself."

Persis met the invalid's irritated protest with an air of disarming frankness.

"Of course you wouldn't see, and that's just what I'm coming at. I suppose Nelson has told you that he and I had a little boy and girl affair when we was both of us too young to know our own minds."

Mrs. Richards' incredulous gasp indicated with sufficient clearness that she had not been favored with her husband's

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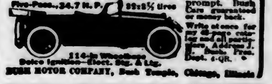

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confidence regarding that chapter in his past.

"You and Nelson?"

"Yes. Now, I don't mean, Charlotte, that we was ever engaged. Mother thought I was too young to have steady company, and Nelson was just a boy, and he took her snubbings to heart more'n he would have done if he'd been older."

"He's always given me to understand," said the wife with dignity, "that I was the only woman he ever cared for."

"I guess they generally say that, don't they, Charlotte? It's kind of like the 'honor and obey' in the marriage service. Women say it when they know they *can't* honor and they *won't* obey. It's just a form. But as far as Nelson goes," explained Persis thoughtfully, "I dare say he could fix that up with his conscience without any trouble, seeing our sweethearting never got beyond a few kisses at the gate. He did give me a ring once, but 'twas nothing but carnelian. Land! Who'd think of that twice?"

Mrs. Richards, breathing hard, had no comment to offer on that delicate point.

"Now the case is just this." Persis spoke briskly. "After you're dead and gone, Nelson's bound to marry again. A widower just can't help himself. What with all the women scheming to catch him, he's got about as much chance as a potato bug turned loose in a chicken yard. Queer thing, the difference between bachelors and widowers," mused Persis, straying temporarily into generalizations. "By the time a bachelor's as old as Nelson, the women have kind of given up on him. But if a man's been married once it proves that he's got a soft spot somewhere, and all that's needed is for them to keep on trying till they find it. But as I was saying, Charlotte, I thought that it might ease your mind to know that he ain't going to be allowed to throw himself away. While I don't want to seem boastful about it, I don't mind saying to you that there's not another woman in the town who would stand any show alongside me, if Nelson was free to pick and choose. And I'll give you my solemn promise that he shan't put anybody in your place that you'd be ashamed to acknowledge for your husband's second wife."

Forgetting her pitiful lack of strength, Mrs. Richards sat erect, her hollow cheeks aflame.

"Persis Dale, have you got the nerve to sit there and tell me to my face that you're going to set your cap for my husband after I'm dead?"

"Now lie down, Charlotte, till I explain." Persis' soothing tone suggested readiness to excuse the natural peevishness of an invalid. "You mustn't go to exciting yourself and hastening the end."

Mrs. Richards promptly resumed her recumbent position.

"I've talked plain to you, Charlotte," Persis said, "because you're not of the same clay as most women. You've always been wrapped up in celestial things since you was a girl. But a woman can't live with a man as long as you've lived with Nelson and not feel responsible for him. And I've told you this so there won't be a single shadow on your mind these last days. I'll look out for Nelson." She spoke with the air of one accepting a sacred trust.

"I never heard of such a thing," breathed Mrs. Richards from her pillows.

"Of course while you were living, Charlotte," Persis continued, as if the release so cheerfully anticipated by the invalid had already been consummated, "I never should have allowed myself to think of Nelson twice. But I own I've blamed my mother more than once for sending him about his business the way she did. Nelson is a man in a thousand, steady and affectionate and a careful provider. If he's been so good to you, Charlotte, just think what the second wife has reason to expect!"

In muffled tones Mrs. Richards confided to the pillow that never in all her life—and seemed unable to proceed further.

"Well, I must be going." Suiting the action to the words, Persis rose. "Send for me any time, Charlotte. Ever since I heard about your state of health, I've felt drawn to you, same as if you were a sister. Mind, I'll drop in my sewing and everything any time you want me. And as for Nelson's future, don't give yourself an anxious thought about that."

"Good-by," said Mrs. Richards faintly, and closed her eyes. And with a commiserative glance in which lurked a spice of humor, Persis withdrew. At the door she encountered Nelson Richards hurrying home early from his work to spend as much time as possible with his wife. Anxiety had left its signature on Nelson's jovial face. He walked with dragging step and drooping shoulders, apprehension counterfeiting age. But at the sight of Persis he roused himself from his customary abstraction.

"Hello, Persis. Well, I declare you're a sight for sore eyes." He regarded her with frank admiration, an unconscious tribute to the effectiveness of the gray crepe. "Looks like you was renewing your youth," he continued with heavy gallantry. "Ain't seen you look so handsome since you was sixteen."

Persis had not invented the episode of Nelson's boyish admiration. In all important details she had held rigidly to the truth, though it is doubtful whether those innocent, sexless kisses at the gate had been recalled in the past dozen years by either party to the transaction. But it was true that Nelson Richards had always had a warm spot in his affections for his first sweetheart, and the cordiality of his greeting was by no means perfunctory.

Persis smiled upon him kindly.

"Thank you, Nelson. Wish I could say as much for you, but to tell the truth, you look to me a little peaked."

"Well, I have felt better." He lowered his big voice discreetly. "Fact is I'm worried pretty near to death over Charlotte. What do you think about her, Persis? Doctor says he don't find nothing out of shape with her organs. Looks as if she'd ought to pick up, don't it?"

He swallowed hard as he put the question, his eyes eloquent with dumb misery, and Persis laid a friendly hand upon his arm as she answered with reassuring certainty: "Don't you worry, Nelson. I feel it in my bones that Charlotte's going to be better before long."

"I'd as soon take your say-so as any doctor's." The big man looked at her gratefully. "Come in as often as you can, Persis. There ain't nobody we'd rather see."

He tramped into the house, armed in his splendid masculine obtuseness, stooped to kiss his wife's hot cheek, and said, as was inevitable, the last thing he should have thought of saying.

"Saw Persis Dale out here just now, and I'll be darned if she ain't getting better looking every day."

"I can't see that that's enough to excuse profanity," said Mrs. Richards witheringly. "Persis Dale is a coarse, scheming creature." Then as her husband burst into astonished protests, she showed signs of hysteria.

"Oh, of course you'll stand up for her. I wouldn't have expected anything else. You go to the ice chest, Nelson Richards, and heat up that cup of beef tea you set away last night." Left to herself she lay back upon the pillows, gazing at the ceiling with vindictive eyes.

"As long as she hasn't got the decency to wait till I'm in my grave," said Mrs. Richards tearfully, "I'll fool her. I'll show her there's many a slip 'twixt the cup and the lip."

(*Continued next issue.*)

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The Star-Spangled Banner

(It is doubtful if the people of any other nation on the face of the globe are as unfamiliar with their national anthem as the people of these United States of America. We are patriotic all right, but ours is often a poorly informed and careless patriotism. Under the stimulus of the wave of patriotism which has swept the country with our declaration of war on Germany the teachers in some of the Philadelphia schools have given to pupils the task of memorizing "The Star-Spangled Banner;" it was with embarrassment that one family of our acquaintance, in assisting the rising generation in its task of memorizing, found that no member of the household could get beyond the second verse at all, and found several mistakes in the verses they thought they knew. Fearing that some of our readers may find themselves in the same fix, it occurred to us that we could not do better than to place before them our national anthem in its entirety and suggest that we all should join the school children in becoming letter perfect on it. Here, then, is "The Star-Spangled Banner.")

O! say, can you see, by the dawn's early light,
What so proudly we hailed at the twilight's last gleaming—
Whose broad stripes and bright stars, through the perilous fight,
O'er the ramparts we watched were so gallantly streaming?
And the rocket's red glare, the bombs bursting in air,
Gave proof through the night that our flag was still there;
O! say, does that star-spangled banner yet wave
O'er the land of the free, and the home of the brave?

On that shore dimly seen through the mists of the deep,
Where the foe's haughty host in dread silence reposes,
What is that which the breeze o'er the towering steep,
As it fitfully blows, half conceals, half discloses?
Now it catches the gleam of the morning's first beam,
In full glory reflected now shines on the stream;
'Tis the star-spangled banner; O! long may it wave,
O'er the land of the free, and the home of the brave!

And where is that band who so vauntingly swore
That the havoc of war and the battle's confusion
A home and a country should leave us no more?
Their blood has washed out their foul footsteps' pollution.
No refuge could save the hireling and slave
From the terror of flight, or the gloom of the grave;
And the star-spangled banner in triumph doth wave
O'er the land of the free and the home of the brave.

O! thus be it ever, when freemen shall stand
Between their loved homes and the war's desolation!
Blest with victory and peace, may the heav'n-rescued land
Praise the power that hath made and preserved us a nation.
Then conquer we must, for our cause it is just,
And this be our motto—"In God is our trust;"
And the star-spangled banner in triumph shall wave,
O'er the land of the free, and the home of the brave.

—*Francis Scott Key.*

Buying Day Old Chicks

At this season many people are debating whether to buy day old chicks or not. And would like to know what chances there are to make good with same.

W. Theo. Wittman, poultryman, Pennsylvania Department of Agriculture, says these questions are fully answered by the broad fact that the demand for and sale of day old chicks yearly increases to an enormous extent. Evidently the public finds that to buy day old chicks is convenient and profitable, and because it finds these things so it comes back yearly and asks for more.

Like everything else when it is new, there were a great many mistakes made and a great many poor chicks sent out, and, of course, there was a great deal of loss and disappointment. And, of course, to some extent this will continue in a trade like that of day old chicks.

However, most of the men hatching and selling day old chicks are reliable and a great many of them now belong to the Day-old Chick Shippers Association, having for its object everything that goes to improve the chances of the buyer getting a square deal.

Success with bought day old chicks is greatly augmented if they are bought as near home as possible. It is a queer kind of human nature that the average buyer shows an inclination to do the opposite and buy at a distance—often a great distance. The chances are equal that just as good chicks can be bought right at home.

Leg Weakness in Chicks

The extension specialist in poultry husbandry of the New Jersey State Agricultural College states that cold, wet weather causes a large amount of "leg weakness" among young chicks. It occurs usually in the early broods, and often among the strongest chicks. The symptoms are a giving way of the legs when the chicks try to walk, resulting in their lying down most of the time.

Leg weakness may be inherited. It may be caused by mal-nutrition, especially if the ration lacks bone-making food. It is caused chiefly, however, by confinement of the chicks to a warm, dry floor for too long a period. To prevent leg weakness, allow the young chicks after they are a week old, to run out of the brooder for a few hours on favorable, clear days, even though there may be snow or ice on the ground. They will not catch cold while they are kept moving. Never let them stand still out of doors, and hence, watch them closely until they learn to go back to the warmth readily when they are cold. The brooder should be so constructed that the heat reaches the chicks from above and not through the floor.

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The Practical Farmer, P. O. Box 1321, Philadelphia, Pa.

LIVE STOCK & DAIRY

Edited by W. H. TOMHAVE

Handling the Fleece

This is the time of the year when shearing is done on most of the farms. It is essential to handle the wool in the best possible manner in order to realize the top price. Wool is bought and sold on the basis of what it will cost to get it in shape for the finished product and on the basis of quality. The conditions under which the sheep are kept and the manner in which the wool is handled often lower the price of a fleece of good wool. Much of the wool that comes on the average market must be discounted for one reason or another, which can be avoided by the person handling the flock of sheep. In many instances the fleece is filled with manure, which involves a considerable amount of extra work in preparation, as well as causing too much shrinkage. A lot of chaff in the fleece is also very objectionable, as it is difficult to remove and can be avoided if the flock is properly handled. Paint marks on the fleece are also objectionable, as they must be clipped by hand from each fleece, thus adding to the expense of handling, as well as causing a loss of wool.

The best time to shear is on a warm day, and after the weather is fairly well settled. If the shearing is done too early the sheep are apt to catch cold, unless it is possible to provide good shelter where they will not be exposed to the cold spring rains. For shearing, select a clean, dry place, preferably a floor or wooden platform on which the fleece can be kept clean and easily handled. Each fleece should be left as nearly intact as possible, as it will then tie up much better and make a more compact bundle, without exposing very much of the inside. Each fleece should be securely tied with soft wool twine, and not with ordinary binding twine, which is very objectionable, because it leaves threads of the twine in the fleece, which must be removed before the wool can be dyed. Binder twine will not take on the same degree of color as the wool fiber, and the result is an uneven color, making it impossible to use the wool for high grade goods; furthermore, these threads must be picked out by hand, making it an expensive operation.

Complaints are frequently made that local wool dealers do not understand the proper methods of grading fleeces, and do considerable damage to the fleece by pulling it all to pieces and then paying the same price for all grades. When such conditions exist, the best method of disposing of the clip is to pack it in large wool sacks and ship it to a large wool and fur house, where it can be properly graded and sold upon its merit.

Wool sacks and twine may be secured from dealers in such goods, or the sacks may be secured from any of the wholesale houses to which the fleeces are to be shipped. If different grades are produced on the farm, they should be sacked separately. Well managed flocks of a uniform grade will have wool of a grade that can be sacked together and command the best market price.

Five years of experimental work with breeding ewes at the Pennsylvania State College has shown that if a reasonable profit per ewe is to be made an average of at least one lamb per ewe (equivalent to 100 per cent. lambs) should be raised. An unusual effort should be made this year, by all farmers keeping sheep, to save and raise all lambs dropped.

Care of Farm Horses

Now that the spring work is in full progress and all the horses on the farm are in harness, doing their share, we are apt to overlook some of the things that are essential in keeping them in the best condition. At this time of the year the horses are apt to be soft and are not used to continuous hard work, so that they are afflicted with various ailments.

Sore shoulders are one of the most common troubles and largely due to carelessness on the part of the driver. Sore shoulders started in the spring usually give more or less trouble the whole year. They are not only troublesome, but painful and irritable to the animals and prevent them from performing the proper amount of work. Such horses are a financial loss on the farm, because they require as much feed as those that do a full day's work with ease, and also require the full amount of one man's time. It is important that the shoulders of the horse be cared for from the time spring work is begun until it closes in the fall.

One of the first essentials is to have a collar that fits properly to the shoulder. There should be no surplus room on the top or lower portion of the collar. It should fit snugly to the sides and just room enough at the breast for the hand to pass through. A loose or large collar will have the same effect on the horse as a large pair of shoes on a man. Every horse on the farm should have its own collar, as it is impossible to expect a horse to be able to do good work while wearing a collar that has been fitted to another horse.

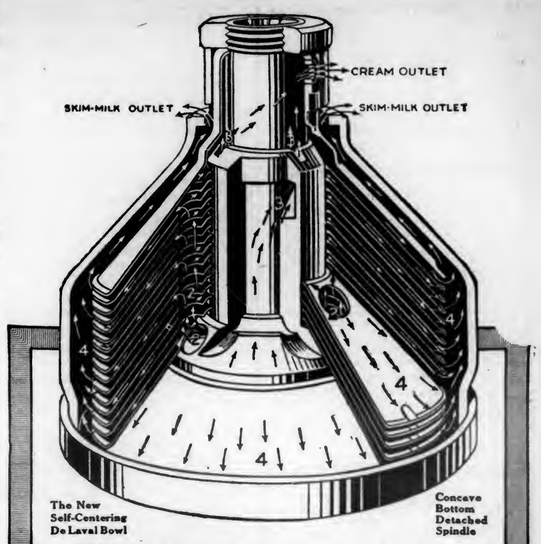
When a new collar is purchased, it is a good plan to put it into cold water the day before it is put on, and left to soak there over night. The collar will then be soft and can be easily molded to the shape of the shoulder of the horse that is to wear it, and will result in a much better fit than when put on without treating in this way.

All horses used for farm work should always be checked up so that they can not hang their heads. The reason for this is, when the horses get a little tired they are apt to droop their heads and thus throw the shoulders too much forward and into an abnormal position. The lower portion of the shoulder will bear the bulk of the draft and bunches are formed.

The question of collar pads is one that should be left to the opinion of the individual. In many cases a light pad can be used to good advantage and is desirable. Thick pads are, as a rule, too hot and clumsy. Never attempt to make a large collar fit a small horse by putting in it a sweat pad or by putting a sack or piece of cloth in at the top.

Collar and sweat pads must always be kept clean. To let dirt accumulate on the collar and remain there to dry and form crusts will very soon form sores on the shoulders. The collar or pad should be carefully cleaned and looked after each day when the team is put in the barn or before the harness is put on the team in the morning.

The shoulders can be kept in good condition by brushing and currying the horses after the team is put in the barn in the evening. Besides currying it is well to wash the shoulders with cold water. The water will harden the muscles over the shoulders and make them tougher. A little time spent in this way each day will be put to good advantage.



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Cleaner Milk and Less Drudgery

A Milking Machine Experience

LEE S. CLYMER

I installed a milking machine on my farm four years ago, and since then it has been in constant use. I have four units, though only three are being used on a herd of 24 cows.

The milking is done by two persons and takes about on an average of 55 minutes for each milking. This is without trying to make undue haste. We find it absolutely necessary to strip all the cows after milking with the machine. On some it milks the cow almost thoroughly clean, while on others the same machine will not do quite so well. This is, I think, on account of peculiarities of the udder, in its relation to the teat cups, and to the disposition of the cow, some letting their milk down more easily than others.

I find that each unit will milk just about as fast as one good milker milking by hand, and while there is not so much difference in the time of milking, there is a material difference in the amount of laborious work connected with the operation. In the case of the milking machine one operator will attend to two or three machines easily, his time being taken up in changing the milking tubes from one cow to another, stripping the cows, and weighing and straining the milk. This affords a variety of operations, which is less tiresome than the assuming of a more or less crouching position necessary in milking by hand. I believe it would be a profitable investment for one who keeps as few as ten cows. Two units would then suffice, and the first cost of a milking machine outfit would not be so great. The product of our farm at which the milking machine is installed is partly sold on a milk route, and the balance taken to an assembling plant and shipped by trolley nine miles to the city, for the general milk trade.

Since using the milking machine we have had very few complaints about the milk not keeping properly, which I believe is due to the fact that no matter how carefully the milking has been done by hand, it is liable to become contaminated by a certain amount of filth from the cows, especially during fly time, when by reason of the switching of their tails, and general restlessness, more or less filth is bound to find its way into an open milk pail. When milking with a milking machine the milk is drawn directly from the udder to an enclosed milk can, and one can readily understand why the milk produced would be more sanitary and of a lower bacteria count than by hand milking.

Of course, the teat cups and rubber hose must be kept thoroughly clean, which can be easily done by thoroughly rinsing before and after milking, with water, and immersing teat cups, rubber hose and all, between milkings, in a solution of salt and hypo-chloride of lime.

We find that cows that have been more or less uneasy during the process of hand milking, stand quiet and apparently contented while being milked by the machine. The attendants seem to be as much pleased as the cow, for they have expressed themselves as being loath to go back to the old process of hand milking. It is my impression that cows milked by the milking machine produce more and longer than by hand milking, and that this is largely due to the fact that the cows are milked, on the average, cleaner, and that there is less disposition to hurry the operation, at times, than by milking by hand. They are never troubled with sore or chapped teats.

The milking machine takes a lot of drudgery away from the operation of milking a large herd. I consider it a great boon to the farm, and would be sorry, indeed, if I were compelled to do away with it.

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Advantages in Selling a Rich Cream

Dairymen who are starting this year to sell cream instead of whole milk, and those who have not studied the possibilities of this method of getting the most out of their product should look into it, must be careful to have as little skim milk in it as possible. W. B. Combs, of the Mo. College of Agri., says there are three reasons for this:

1. If cream is bought on the butter-fat basis, he gets nothing for the skim milk. 2. It takes less ice to cool it and less work to haul and handle it; it costs less to ship it. 3. The skim milk in thin cream sours and forms small lumps of curd.

Creamery men advise the farmer to sell only rich cream because it is an advantage to all parties concerned. Every bit of skim milk is needed on the farm as feed for calves, chickens and pigs, and it does harm instead of good if sent to market in the cream. Of course, if the cream is sold by the pint or quart instead of on a butter fat basis, the story is somewhat different, but wherever the grading system is in operation every bit of skim milk marketed is worse than wasted so far as both buyer and seller are concerned.

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Sheep Industry in Pennsylvania

There is good reason for the present unusual demand for high-grade breeding ewes and pure-bred rams. In the United States wool production has steadily declined more than 12 per cent. during the past seven years.

In Pennsylvania the decline has ranged from six million pounds in 1909, to four million pounds in 1915. The price of Pennsylvania wool has advanced, in the past three years, from 26 to 60 cents for "x." for the first months of 1917, and from 24 to 48 cents for "⅜-blood" in February, 1917.

The yearly average price of lambs on the Chicago market shows an increase from $6 per cwt. in 1911 to $10.75 per cwt. in 1916. This makes an average lamb price for the last ten years of $7.68 per cwt. Recently lambs sold on the Buffalo market for $15.60 per cwt. The market reports, therefore, indicate that the 1917 prices for both wool and mutton should be very good.

The profit from the breeding flock depends upon the "total clip" and upon the lambs raised. For an average flock the lambs constitute 60 per cent. and the wool 40 per cent. of the total return.

A survey recently made by the department of agricultural extension at State College, of 214 farm flocks in 30 different counties of Pennsylvania, shows that the proportion of lambs raised to the number of sheep in the flock varied from 36 per cent. lambs in one county to 125 per cent. lambs in the leading county. The average percentage of lambs raised for the 214 flocks was 76 per cent.

Forage Crops for Swine

This is the time of year when farmers should plan a small lot or field of forage for summer pasture, if the spring pigs are to be carried through the summer. The high price of grain emphasizes the value of forage crops in raising market pigs. The kind of land and time of seeding may affect the kind of crop to be used, but any one of a variety of crops will furnish pasture at from 6 to 8 weeks after seeding. Dwarf Essex rape, Sweet clover, Red clover, oats and peas are recommended by the New Jersey Agricultural Experiment Station. According to the latest available quotations from seed firms, it seems that for spring seeding, a mixture containing 8 to 10 pounds of Sweet clover and 4 to 6 pounds Dwarf Essex rape per acre is the most economical, everything considered. If very early pasture is necessary, 1 bushel of oats can be added to the mixture. For young pigs a mixture of oats and Canada field peas is quite satisfactory, although for brood sows its economy is questioned. Soy beans are excellent for midsummer or late summer pasture, and can be planted alone or in combination with rape.

High Seven-Day Butter Records

The astonishing production of 50.7 pounds of butter in seven days by the New York cow, Segis Fayne Johanna, recently announced, calls to mind that the Missouri College of Agriculture first showed, several years ago, how these abnormally high seven-day butter records are brought about. The cow is fed heavily while dry for some time before calving and begins the milking period with a large amount of surplus fat on the body. If the animal is naturally a heavy milk producer these conditions invariably cause the animal to be underfed for a period of time after calving. It is this underfeeding which causes the cow to take off her excess body fat laid on before calving and put it into the milk.

The effects of underfeeding on the milk and butter have been extensively studied by the Missouri Experiment Station. Recently published results of these experiments show that the butter fat produced during the high seven-day tests has a composition such that it appears to have been mixed with oleomargarine. The butter would not pass for pure butter, according to the Government pure food standards.

Care Will be Well Repaid

The bureau of estimates of the U. S. Department of Agriculture has just reported that the number of breeding sows in the United States on April 1st is estimated to be 2.9 per cent. less than a year ago, and 1.3 per cent. less than two years ago. This leads them to advise that extra care be given to the spring pig crop.

It is very necessary that the little pigs have plenty of exercise and all the sunlight that can be given them. Do not allow the pigs to run out during a cold rain. If possible, provide green feed or roots. These keep the sow healthy and cheapen the ration. Encourage the pigs to eat grain after they are three or four weeks old. Build a creep for them so they can feed alone. At this age feed for bone and muscle. Give them all the skim milk you can. If skim milk is not available, give them some meal and plenty of pasture. In about eight or ten weeks the pigs will have practically weaned themselves. After they have been successfully weaned the most perplexing job is over.

By putting into practice the essential points above mentioned the number of pigs raised to weaning should be increased. Hogs never fail to respond to good care. Kind treatment always means added profits through contentment.

Queries Answered

Smoke House for the Farm.—E. du P., Delaware, writes: "I want to build a smoke house on my farm and would like some information on the subject. Can you refer me to any book which has the information I desire?"

A smoke house should be built of fireproof material. This not only reduces the danger from fire, but it also reduces the labor in keeping it clean. The size of the house depends upon the amount of meat to be smoked at one time. On a farm the meat can be smoked in several shifts, if necessary. It is more important to have height in the house than too much width. A house 6x8 feet and 10 feet high is large enough for the average farm. The walls should be smooth. It is essential to have an opening in the roof to allow for ventilation or for the smoke to escape. A fire pit can be built in the ground, which allows the smoke to play directly on the meat. This can be overcome by suspending a metal or tin sheet over the fire, which will have a tendency to spread the smoke to the side walls and allow for a more even distribution over the meat. It will also keep the heat from the meat.

Another method of applying the smoke is to have a small fire pit built outside of the smoke house, but so arranged that the smoke must pass through the house in which the meat is hung. An old stove placed on the outside will work in the same manner. The only advantage of this arrangement is that the heat does not come in direct contact with the meat.

We know of no books dealing specifically with the building of smoke houses for the farm. Some of the ready-made house concerns and manufacturers of concrete have designs for such structures. The amount of material and cost of construction can best be determined by a local builder, as the price of material is governed by local conditions.

Saves Time!

The faster you turn the Sharples, the quicker you finish skimming! For instance: If by turning a Sharples at 45 revolutions per minute you get through separating in 15 minutes, you can get through in 10 minutes by simply increasing the speed to about 55 revolutions. The Sharples is the *only* separator that can be "hurried"—a mighty handy thing when *you* are hurried.

Now consider the time saved in cleaning the Sharples. The bowl is the most simple in existence—just *one* piece in it, no discs or blades. Simply run a brush through it once or twice—and cleaning's done!

Furthermore, the Sharples requires oiling only *once* a month—and in only *one* place. Just pour a little oil into the enclosed gear case—more time saved!

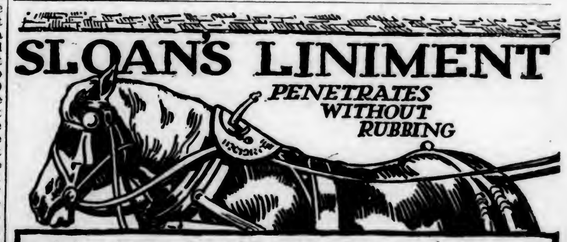
SHARPLES
Famous Suction-Feed
"Skims clean at any Speed"
SEPARATOR

—the *only* separator that skims clean at widely-varying speeds
—the *only* separator that delivers cream of unvarying thickness—all speeds
—the *only* separator that you can turn faster and finish skimming quicker
—the *only* separator with just *one* piece in the bowl—no discs, easiest to clean
—the *only* separator with knee-low supply tank and a once-a-month oiling system

Remember that all separators lose considerable cream when turned below speed—*except Sharples!* The Sharples gets all the cream no matter whether you turn it fast or slow. It saves up to $100 a year more than other separators. Cordially welcomed by women, owing to its easy turning and easy cleaning. Over a million Sharples users. Write for catalog to Department 40.

The Sharples Separator Co. - West Chester, Pa.
Sharples Milkers—used on over 300,000 cows daily
Branches: Chicago San Francisco Toronto
5-14

SLOAN'S LINIMENT



A lame horse can't give full service. Relieve the bruised muscle, strained tendon or stiff joint with Sloan's Liniment, quickly penetrates. You will find many other farm uses for it. Thousands of farmers indorse this universal relief for pains and aches. At all dealers, 25c. 50c. $1.00 a bottle. The $1.00 bottle contains six times the 25c. size.

TIGHT AS A DRUM

Ensilage *can't spoil* in an Economy Silo. Perfect fitting doors make the silo perfectly air-tight. That means fresh, sweet ensilage all the time. Quick, easy adjustment. Strong steel hoops form easy ladder. Built of White or Yellow Pine, Oregon Fir or Cypress. You can't buy a better silo. Anchoring system with every silo. Our motto is Quality. Factories at Frederick, Md., and Roanoke, Va. *Write for free catalog.*
ECONOMY SILO & MANUFACTURING CO. Dept. X, Frederick, Md.

Only $2 Down
One Year to Pay!
$24 Buys the New Butterfly Jr. No. 2. Lightrunning, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in five other larger sizes up to No. 5 shown below.
30 Days' Free Trial Earns its own cost and more by what it saves in cream. Ventel brings Free catalog, folder and "direct-from-factory" offer. Buy from the manufacturer and save money.
ALBAUGH-DOVER CO. (22) 2120 Marshall Blvd. CHICAGO

They Are Going Fast!

Less than 90 days ago **HARRIS BROTHERS** announced the purchase of the entire remaining stock of the world's famous original and genuine SHARPLES TUBULAR "A" SEPARATORS. To move them quickly, they offered them to *The Practical Farmer* readers at a saving of from $20 to $40. The response was instantaneous and enormous. They received thousands of inquiries and orders from farmers and dairymen everywhere. Many sent their orders direct from the advertisement. The Separators are moving fast. Do you want one? When this lot of Separators is gone **HARRIS BROTHERS** are through with the sale and the opportunity to make this saving will be past. Act now. First come, first served. Read what Mr. P. M. Sharples says, and why he selected **HARRIS BROTHERS.** You will find his letter at the bottom of the page. Neither SHARPLES SEPARATOR CO., nor **HARRIS BROTHERS** need an introduction to *The Practical Farmer* readers. Most of you have done business with them at some time or another. To their thousands of customers everywhere, **HARRIS BROTHERS** unhesitatingly advise you to take advantage of this bargain. This is one of the greatest values and money saving opportunities they have ever been able to put before you. They have built their enormous business by giving *The Practical Farmer* readers money saving values. They have been placing them before you for 20 years. When they see a real opportunity they take advantage of it and pass it along to the farmers of this country. They recognized such an opportunity in this SHARPLES TUBULAR "A", and are now offering you the benefit. They will sell every last one of them and quickly, too. The SHARPLES TUBULAR "A" has been tried and tested by 35 years of service and by over 1,000,000 satisfied owners. Back of every Tubular "A" Separator is a satisfactior-or-money-back guarantee and the regular Sharples' Forever guarantee. With most everything going up in price, this money saving offer is a real opportunity to solve the Separator question.

Never Before Such a Separator Bargain

There never was such a Separator bargain as this, and probably never will be again. We know what the Separator is, and because we know we will sell it to you on your own terms. It will make good. We will ship it to you anywhere, any time, on any basis and let the Separator decide. We absolutely guarantee satisfaction or money back **at once.** Name your terms, cash, or easy time payments. **Thirty Days' Free Trial,** and we will take your old Separator off your hands, too. We want you to have a **Sharples Tubular "A"** and we are making the fairest and most liberal proposition we know of. Truly there never was such a Separator bargain as this. For immediate delivery. Act at once! Don't risk **disappointment of failing to get one.** You should have a **Sharples.**

SHARPLES At Tremendous Price Reduction!

GENUINE TUBULAR "A" CREAM SEPARATOR

HERE ARE THE PRICES

Enormous Reductions on all Capacities

No.	Cap. Lbs. Per Hour	Regular Price	Our Price
2	300	$ 55	$32.75
3	400	65	$40.00
4	500	75	$45.00
6	700	90	$52.50
9	950	110	$70.00

SAVE NOW $20 TO $40

Honest Ratings Guaranteed

No High Lifting

Low, Easy-to-Turn Sharples Crank Handle

Equipped with Pulley for Power Operation for $2.50 Extra

Regular Sharples Guarantee to You Forever

With each Genuine Sharples Tubular "A" Cream Separator purchased of HARRIS BROS. CO. you get our regular *Guarantee Forever* against defects of material or workmanship. Defective parts replaced FREE of charge at any time. This, our unlimited Guarantee (copy on request), given through 35 years to over 1,000,000 satisfied owners.

SHARPLES SEPARATOR COMPANY.

Double Guarantee — Harris Bros. Co.'s With Sharples'

For 35 years SHARPLES' Guarantee Forever has proved the highest protection for Separator buyers—Satisfaction and Savings. For 24 years HARRIS BROTHERS CO., owners of the CHICAGO HOUSE WRECKING CO., has sold its Guaranteed Products at the Lowest Prices Direct-to-Users. Their original methods of purchase and sale has been the saving of millions of dollars to Farmers and Dairymen.

30 DAYS FREE TRIAL

Put it up against any Separator made at any price, and if it don't skim closer, clean easier, and convince you it is the biggest Separator value ever seen, return it at our expense. Save wasted butter-fat profits you now waste if you use other Separators or skim by hand. Get one and prove these facts, whether you own 3 cows or 50 or more. Be the *Sole Judge* and prove whether you want and need a SHARPLES at OUR RISK.

WE WILL TAKE YOUR OLD SEPARATOR

If you have an old Separator and it is not giving the service it should, don't go on with it. Stop the loss. Don't continue with an inferior Separator and get unsatisfactory service. Just because you have it. We will make you a liberal allowance on it and take it off your hands. Tell us the name of your Separator, how long used and its condition. It will mean money in your pocket to do this.

ORDER DIRECT FROM THIS ADVERTISEMENT

If you don't want to send the money in advance, deposit it in the bank. We will ship the Separator and you can give it a 30 day free trial. **If you send cash with the order, deduct 3% cash discount** as we save this amount in bookkeeping and office work when the cash is sent with the order. You take no risk because we are absolutely reliable. We have been advertising in the **The Practical Farmer** for nearly 20 years. Ask any publisher, express company, or bank about us. If you don't want to pay cash we will sell it to you on easy time payments. No matter how you buy it, every one is sold on the basis of **Satisfaction or Money Back at once.**

State Experiment Sta

ORIGINAL and GENUINE SHARPLES TUBULAR "A" CREAM SEPARATORS

Now, at last, positively the best *Fixed-Feed* Cream Separators in the world—The Genuine SHARPLES TUBULAR "A"—can be yours at CUT prices for any capacity. Save $20 to $40 on the regular price here if you take our unqualified 30 Days' FREE trial at once. NOW DON'T DELAY WRITING. Investigate! GET ALL SHARPLES PHOTO-BOOKLETS and color-illustrated CATALOGS FREE from us AT ONCE.

Probably your neighbors have THESE EXACT SHARPLES and you know all about this wonderful Separator and have wanted one. This is your best chance to get one.

On account of the limit of our stock of these Genuine Sharples Tubular "A" Separators our prices are subject to quick acceptance.

Facts Known to Over a Million Users

The Tubular Bowl of the SHARPLES is found in *no other* Separator. (Broadly patented and exclusively used here only.) It has twice the centrifugal force of any other bowl—due to the tubular shape.

There is only ONE PIECE to wash—not the dirty labor of handling the "bucket bowls" with their 30 or 40 disks to clean twice daily in the separators. This is one of the reasons why Sharples has always been *the* favorite Separator with the *farm women.*

In fact if it were not for the SHARPLES Patents the market years ago would have been flooded with cheap imitations of the TUBULAR Principle, which no one else can offer you. You probably know that.

The very long, narrow shape of the Tubular Bowl accounts for it being the *closest skimming* Separator on the market. *CREATES DOUBLE THE SKIMMING FORCE OF ANY OTHER BOWL.*

On Durability—Thousands of Tubular "A" Sharples Separators have not cost one dollar for repairs in 15 years' service.

Only half as many parts as other Separators—each part DOUBLY WELL MADE—rigidly inspected many times. Workmanship and materials of highest grade.

Absolutely Honest Ratings of Capacity of every SHARPLES never will fool you on price, per capacity—or on your skimming time, or on the cleanest skimming records, per capacity—in the world.

P. M. SHARPLES

Highest Authority 35 Years' Record

He made the first Cream Separator in America. Has sold over one million Sharples Cream Separators to best judges of Separator values in the world. Always at one price. Never cut before. All Sharples owners are Sharples boosters for original Genuine Tubular "A." Right principle. Highest quality and prestige. His word is as good as a government bond.

READ HIS LETTER

The Sharples Separator Co.
WEST CHESTER, PA. U.S.A.

December 23, 1916

TO
HARRIS BROTHERS COMPANY
CHICAGO, ILLINOIS

Gentlemen:

In disposing of our entire remaining stock of Tubular "A" Separators to you, we do so, knowing that:

1st. That the Sharples Tubular "A" Separator is the best fixed-feed separator on the market—far ahead of all other fixed-feed separators in clean skimming, durability and ease of cleaning.

2nd. In selecting Harris Brothers Company to dispose of our entire remaining stock of Tubular "A" Separators, we do so because we believe them best equipped in every respect to quickly market these separators on exactly the same guarantee as over a million users of them have bought in the past.

We will stand back of every Sharples Tubular Separator sold by you with the same Perpetual Guarantee which has protected Sharples users in the past, and will continue to carry a complete line of repair parts.

It is thoroughly understood that this sale includes only our complete stock of fixed-feed Tubular Separators and no other.

With full confidence in your success,

Sincerely yours,

P M Sharples
President

Now Save $20 to $40

Immediate Delivery From Point Nearest You

Your Separator will be shipped at once from the nearest point. SHARPLES-TUBULAR "A" will be shipped f. o. b. at once from either Harrisburg, Pa.; Chicago, Ill.; Kansas City, Mo.; Fargo, N. D.; St. Paul Minn.; Dallas, Tex.; San Francisco, Cal.; Portland, Ore.; Ogden, Utah or Seattle, Washington. There will be no delay.

FREE

Harris Bros. Company
Dept. FS-40, Chicago, Ill.

Send me at once (without obligation) all Photo-Booklets, SHARPLES Tubular "A" Cream Separator Color-Illustrated Big Catalog, Easy terms, 30 days' FREE Trial Offer, Double Guarantees and quote all Reduced Price Offers—**FREE.**

Name.....

Address.....*Town*.....

R. F. D. No..... *State*.....

(*I milk*.....*cows*)

ACT NOW! DON'T DELAY

Remember the stock of these original and genuine Sharples Tubular "A" Separators is limited and you must act immediately. While this tremendous stock would be sufficient under ordinary circumstances, they won't last long at the rate they are going. Remember the early buyers get the pick and choice, and all orders are handled and filled in rotation. We guarantee the ratings of capacities to be absolutely honest. The rating capacity of each Separator will never fool you on the price or capacity, or on the skimming time or on cleanest skimming records for capacity in the world. Send your order direct to our Main Headquarters at Chicago.

FREE We couldn't tell you all about this wonderful proposition in this advertisement so we urge you to fill out the coupon and let us send you the catalog. This tells all about this offer. Also tells you all about the Sharples Tubular "A". This catalog, beautifully illustrated, shows exactly how it is made and even if you are not ready to buy a Separator right now, get this catalog anyhow. You will want one of these Separators when you fully understand what a wonderful opportunity this is. Clip the coupon, send for catalog today. It is free.

HARRIS BROS. CO.

Dept. FS-40, CHICAGO

The Practical Farmer

PUBLISHED CONTINUOUSLY SINCE 1855

Volume 113 Number 9 | Copyright, 1917, by Walker Publishing Company in the United States | PHILADELPHIA, MAY 1, 1917 | Entered at the Philadelphia Post Office as Second Class Matter | 50 Cents Per Year 3 Years for $1.00

A Host of Uses Has the Tractor

Men and horses this year are at a premium. A tractor will take the place of several of each and hot weather will not diminish its capacity for work

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SHARPLES SEPARATOR COMPANY.

Double Guarantee — Harris Bros. Co.'s With Sharples'

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ORDER DIRECT FROM THIS ADVERTISEMENT

If you don't want to send the money in advance, deposit it in the bank. We will ship the Separator and you can give it a 30 day free trial. **If you send cash with the order, deduct 3% cash discount** as we save this amount in bookkeeping and office work when the cash is sent with the order. You take no risk because we are absolutely reliable. We have been advertising in the **The Practical Farmer** for nearly 20 years. Ask any publisher, express company, or bank about us. If you don't want to pay cash we will sell it to you on easy time payments. No matter how you buy it, every one is sold on the basis of **Satisfaction or Money Back at once.**

P. M. SHARPLES Highest Authority 35 Years' Record

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WEST CHESTER, PA. U.S.A.

December 23, 1916

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With full confidence in your success,
Sincerely yours,
P M Sharples
President

Immediate Delivery From Point Nearest You

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FREE

Harris Bros. Company
Dept. FS-40, Chicago, Ill.

Send me at once (without obligation) all Photo-Booklets, SHARPLES Tubular "A" Cream Separator Color-Illustrated Big Catalog, Easy terms, 30 days' FREE Trial Offer, Double Guarantees and quote all Reduced Price Offers—**FREE.**

Name.....

Address.....*Town*.....

R. F. D. No..... *State*.....

(*I milk*.....*cows*)

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Dept. FS-40, CHICAGO

State Experiment Sta

The Practical Farmer

PUBLISHED CONTINUOUSLY SINCE 1855

Volume 113 Number 9 | Copyright, 1917, by Walker Publishing Company in the United States | PHILADELPHIA, MAY 1, 1917 | Entered at the Philadelphia Post Office as Second Class Matter | 50 Cents Per Year 3 Years for $1.00

A Host of Uses Has the Tractor

Men and horses this year are at a premium. A tractor will take the place of several of each and hot weather will not diminish its capacity for work

INTENTIONAL SECOND EXPOSURE

A Proclamation by the President

THE WHITE HOUSE
WASHINGTON

My Fellow Countrymen:

The entrance of our own beloved country into the grim and terrible war for democracy and human rights which has shaken the world creates so many problems of national life and action which calls for immediate consideration and settlement that I hope you will permit me to address to you a few words of earnest counsel and appeal with regard to them.

We are rapidly putting our navy upon an effective war footing and are about to create and equip a great army, but these are the simplest parts of the great task to which we have addressed ourselves. There is not a single selfish element, so far as I can see, in the cause we are fighting for. We are fighting for what we believe and wish to be the rights of mankind and for the future peace and security of the world. To do this great thing worthily and successfully we must devote ourselves to the service without regard to profit or material advantage and with an energy and intelligence that will rise to the level of the enterprise itself. We must realize to the full how great the task is and how many things, how many kinds and elements of capacity and service and self-sacrifice, it involves.

These, then, are the things we must do, and do well, besides fighting,—the things without which mere fighting would be fruitless:

We must supply abundant food for ourselves and for our armies and our seamen not only, but also for a large part of the nations with whom we have now made common cause, in whose support and by whose sides we shall be fighting.

We must supply ships by the hundreds out of our shipyards to carry to the other side of the sea, submarines or no submarines, what will every day be needed there, and abundant materials out of our fields and our mines and our factories with which not only to clothe and equip our own forces on land and sea but also to clothe and support our people for whom the gallant fellows under arms can no longer work, to help clothe and equip the armies with which we are co-operating in Europe, and to keep the looms and manufactories there in raw material; coal to keep the fires going in ships at sea and in the furnaces of hundreds of factories across the sea; steel out of which to make arms and ammunition both here and there; rails for worn-out railways back of the fighting fronts; locomotives and rolling stock to take the place of those every day going to pieces; mules, horses, cattle for labor and for military service; everything with which the people of England and France and Italy and Russia have usually supplied themselves but cannot now afford the men, the materials, or the machinery to make.

It is evident to every thinking man that our industries, on the farms, in the shipyards, in the mines, in the factories, must be made more prolific and more efficient than ever and that they must be more economically managed and better adapted to the particular requirements of our task than they have been; **and what I want to say is that the men and the women who devote their thought and their energy to these things will be serving the country and conducting the fight for peace and freedom just as truly and just as effectively as the men on the battlefield or in the trenches.** The industrial forces of the country, men and women alike, will be a great national, a great international, Service Army,—a notable and honored host engaged in the service of the nation and the world, the efficient friends and saviors of free men everywhere. Thousands, nay, hundreds of thousands, of men otherwise liable to military service will of right and of necessity be excused from that service and assigned to the fundamental, sustaining work of the fields and factories and mines, and they will be as much part of the great patriotic forces of the nation as the men under fire.

I take the liberty, therefore, of addressing this word to the farmers of the country and to all who work on the farms: The supreme need of our own nation and of the nations with which we are cooperating is an abundance of supplies, and especially of food stuffs. The importance of an adequate food supply, especially for the present year, is superlative. Without abundant food, alike for the armies and the peoples now at war, the whole great enterprise upon which we have embarked will break down and fail. The world's food reserves are low. Not only during the present emergency but for some time after peace shall have come both our own people and a large proportion of the people of Europe must rely upon the harvests in America. Upon the farmers of this country, therefore, in large measure, rests the fate of the war and the fate of the nations. May the nation not count upon them to omit no step that will increase the production of their land or that will bring about the most effectual cooperation in the sale and distribution of their products? The time is short. It is of the most imperative importance that everything possible be done and done immediately to make sure of large harvests. I call upon young men and old alike and upon the able-bodied boys of the land to accept and act upon this duty,—to turn in hosts to the farms and make certain that no pains and no labor is lacking in this great matter.

I particularly appeal to the farmers of the South to plant abundant foodstuffs as well as cotton. They can show their patriotism in no better or more convincing way than by resisting the great temptation of the present price of cotton and helping, helping upon a great scale, to feed the nation and the peoples everywhere who are fighting for their liberties and for our own. The variety of their crops will be the visible measure of their comprehension of their national duty.

The Government of the United States and the governments of the several States stand ready to cooperate. They will do everything possible to assist farmers in securing an adequate supply of seed, an adequate force of laborers when they are most needed, at harvest time, and the means of expediting shipments of fertilizers and farm machinery, as well as of the crops themselves when harvested. The course of trade shall be as unhampered as it is possible to make it and there shall be no unwarranted manipulation of the nation's food supply by those who handle it on its way to the consumer. This is our opportunity to demonstrate the efficiency of a great Democracy and we shall not fail short of it!

This let me say to the middlemen of every sort, whether they are handling our food stuffs or our raw materials of manufacture or the products of our mills and factories: The eyes of the country will be especially upon you. This is your opportunity for signal service, efficient and disinterested. The country expects you, as it expects all others, to forego unusual profits, to organize and expedite shipments of supplies of every kind, but especially of food, with an eye to the service you are rendering and in the spirit of those who enlist in the ranks, for their people, not for themselves. I shall confidently expect you to deserve and win the confidence of people of every sort and station.

To the men who run the railways of the country, whether they be managers or operative employees, let me say that the railways are the arteries of the nation's life and that upon them rest the immense responsibility of seeing to it that those arteries suffer no obstruction of any kind, no inefficiency or slackened power. To the merchant let me suggest the motto, "Small profits and quick service," and to the ship-builder the thought that the life of the war depends upon him. The food and the war supplies must be carried across the seas no matter how many ships are sent to the bottom. The places of those that go down must be supplied and supplied at once. To the miner let me say that he stands where the farmer does: the work of the world waits on him. If he slackens or fails, armies and statesmen are helpless. He also is enlisted in the great Service Army. The manufacturer does not need to be told, I hope, that the nation looks to him to speed and perfect every process; and I want only to remind his employees that their service is absolutely indispensable and is counted on by every man who loves the country and its liberties.

Let me suggest also, that every one who creates or cultivates a garden helps, and helps greatly to solve the problem of the feeding of the nations; and that every housewife who practices strict economy puts herself in the ranks of those who serve the nation. This is the time for America to correct her unpardonable fault of wastefulness and extravagance. Let every man and every woman assume the duty of careful, provident use and expenditure as a public duty, as a dictate of patriotism which no one can now expect ever to be excused or forgiven for ignoring.

In the hope that this statement of the needs of the nation and of the world in this hour of supreme crisis may stimulate those to whom it comes and to remind all who need reminder of the solemn duties of a time such as the world has never seen before, I beg that all editors and publishers everywhere will give as prominent publication and as wide circulation as possible to this appeal. I venture to suggest, also, to all advertising agencies that they would perhaps render a very substantial and timely service to the country if they would give it widespread repetition. And I hope that clergymen will not think the theme of it an unworthy or inappropriate subject of comment and homily from their pulpits.

The supreme test of the nation has come. We must all speak, act and serve together!

WOODROW WILSON.

"Wherewith Shall We Be Fed?"

We have asked the Masters of several of the State Granges in the Middle Atlantic States for an expression regarding the much discussed question of the country's food supply and the part which farmers should take in the present crisis. These men are the leaders of the organized farming interest of their states and what they say, while it might not express the sentiment of each member of their organizations, should be carefully studied at this time, as they have given the matter a great deal of thought. We are presenting here the replies from three of these officials:

T. C. Atkeson, Master Virginia State Grange

You have submitted a large question. The whole world is interested, just now, as never before, in the all-important question of "Wherewith shall we be fed?" Much is being said and written about the country's food supply, and many very silly suggestions are being made by men who ought to know better. Yesterday I attended a meeting of farmers at Ashland, Ky., and heard some very nice speeches. The State Commissioner of Agriculture declared that if he were governor of Kentucky he would call an extra session of the Legislature to enact a law prohibiting the sale of heifer calves for veal, and a number of other fool things. Farmers and dairymen sell calves because they think it pays them better to sell them than it does to keep them. If they can't sell the calves they will just sell the cows and then where are you?

The fact is the present crisis was sure to come sooner or later and has only come more suddenly and appallingly because of the abnormal conditions and the short crop of 1916.

For fifty years consumption in this country has been gaining on production until it has finally caught up with it, and the reasons for this condition are so numerous and elusive that it would take a book to accurately diagnose the economic changes and conditions that have brought this about.

The fact is that we now find ourselves at war with a short food supply staring us in the face. For this emergency what the farmers of this country need is not education, county agents or advisors, but more strong, able-bodied, willing, efficient farm labor, at a price they can afford to pay. They wanted this labor badly the last two or three weeks and they want it worse now; and nothing else can save the situation. It is now or never so far as the crop of the present year is concerned. I learn from the papers that my own state agricultural college, and some others, are graduating the 1916 class of agricultural students in advance, to send them out to tell the farmers how to farm. These boys are fine young fellows, but not many of them will be willing to go to work at $15 a month and their board (the pay of a soldier) helping out the labor problem. For this emergency they had as well stay in school as to go out for any other purpose. The immediate future is sure to see a tremendous readjustment of our agricultural conditions.

S. J. Lowell, Master New York State Grange

I believe that there is a great deal that can be said about the matter of our country's food supply at the present time. I have very little patience with the many things that are being said about what the farmers should do from a patriotic standpoint. The history of the farmers of America proves their patriotism and that the people of today are less patriotic than

(Concluded on page 181)

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CONTRIBUTING EDITORS
W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE
F. V. L. TURNER CHARLES A. McCUE J. H. REED

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MAY 1, 1917

The Great Food Question

Our readers will study with interest the President's proclamation which appears on the inside front cover of this paper and we hope and believe that it will inspire in us all an earnest desire to serve our country in whatever way we can serve best. For the most of us this will be in the way of increased production of food supplies—and indeed there is no worthier or more vital manner in which any one can help than this.

In this, as in all other great causes, the danger is that our enthusiasm will die out as the season progresses and that much of the big acreage planted will fail to thrive through lack of proper cultivation and that ultimate production will be no larger than though we had planted smaller areas and given them our full and careful attention. It will be necessary for us to keep ever before us our country's—and for that matter the world's—great and serious need and ever and again spur ourselves on to do our bit conscientiously and with every ounce of ability and energy in us.

That the food situation is a very serious world question today is graphically set forth in a letter which the National City Bank of New York, one of this country's greatest financial institutions, has just sent out to bankers throughout the land. After giving the figures concerning the meagerness of the world's wheat supply and the forecast for a winter wheat crop very considerably below the average—all indicative of a serious wheat shortage for the coming season—this letter goes on to say:

"This country is now at war, and our allies, Belgium, Great Britain, France and Italy, are dependent upon us for food. They will have no reserves and must have more from us in the coming year than in the past, or they will not be able to feed all their people. Added to the appeals of starving humanity will be military reasons making it impossible for us to put an embargo upon the exportation of food. We must divide what we grow this year with these countries, and with the neutral countries—Holland, Denmark, Norway, Sweden, Switzerland and Spain—which are not self-sustaining in grain supplies. And not only must we supply enough to keep these peoples from starving, but enough to cover the heavy losses at sea which result from the submarine warfare. If we grow no more food than we did last year—and so far the outlook is for less—there is danger of a food situation such as the world in modern times has not dreamed of. No other country has the resources in land and population to meet this emergency but the United States. There is no business upon which all other business depends as upon this of growing a big crop in America this year. And the work must be started immediately. • • • • • •

"Picture in your mind what conditions will be in our own cities next winter, and of the effect upon all industry, if food supplies are scarcer and dearer than they are now! It must be impressed upon everybody that no wage advances or regulation of prices can add one bushel of wheat or potatoes to the supply after the growing season is over."

Let us ponder these things, friends, and if we can bring ourselves to a realization of the fact that every extra bushel of potatoes or corn and every extra pound of other foods which we make our acres produce, is not only a distinct and pertinent factor in the winning of our great war, but a means of sustaining life at home or abroad which otherwise would be extinguished, our brains, our hands and our hearts will lend themselves to this great problem of production as never before in our lives.

A Time When Blood Tells

This year it is going to be economical production which counts. Saving time and labor, always two big factors in work on the farm, has an added premium now, and the man who has been quietly working along this line will receive his reward.

Pure-bred stock has always had its advantages, but now what is wanted by everybody is swine which will fatten easily, sheep with good wool, cows which give a good profit on the feed they eat, and horses which will do a full day's work. Live stock which has been bred with a definite object in view for a number of years cannot fail to give better results than that which has had no attention given to it. To start in now and try to reap the benefit of what some one else has developed will naturally cost considerable, but the chances are it will cost considerably more to try to get along with animals which are not suited for the object sought.

The value of cow testing associations is now apparent to every one, and even those who are not fortunate enough to belong to one of these organizations could spend no more profitable time than weeding out the "boarders." This country does not need more horses nearly as badly as it needs better horses. We need horses which will allow us to use bigger machines in the field and take a bigger load to market because it is labor that is short and the problem is how to get the best results. Even if we did not want to produce more every one should be interested in having farm work so organized that it will take rank with the best of trades. What is the advantage in going over a field twice when once with a larger team and implement would accomplish the same result. The day of the general-purpose horse is rapidly passing. When a trip must be made to town, the family go to church, or the boy to see his girl the great tendency is to use other means of locomotion. This seems to be a good tendency, too, because it is for maximum efficiency not only from the horses but from the helpers, as they can mix more, have broader vision and labor with renewed interest when work presents itself.

Now—Give the Silo a Chance

Feeds and farm labor are both very likely to be more scarce and higher in price during this coming year than for many years past. Wars cannot be fought without prices advancing. This may influence some farmers to reduce their live stock in order to save on feed and labor, but this should not be the case, and *must* not be if our farm production is to be kept up to the level of efficiency which the times demand.

It must be remembered that as the prices of "raw materials" and "manufacturing costs" increase so "finished products" will increase in value and the farmer is hardly likely to play a losing game by maintaining his present quota of live stock or even increasing it—especially if he gives careful attention to improved methods and economies in the handling and feeding of his stock. Moreover it is to be remembered that fertilizers are extremely high in price now and that the price is not likely to decrease for some time to come; more live stock always means more manure and plenty of home produced plant food will be no small item in the cost of raising future crops.

The experience of thousands of dairymen throughout the country has shown beyond question that the silo is one of the most important factors in the economic feeding of cattle today, but while silage has generally been looked upon as primarily a feed for dairy cows it is being increasingly used with excellent results for other farm stock—as testified to in a recent "Experience Pool" in this paper on that subject. The experiences of brother farmers and the results of experiments of various state experiment stations should convince any "Doubting Thomas" among us that the silo is practical and profitable on any farm where live stock is kept in any quantity. If the silo has proved profitable in the past it should prove doubly profitable under present conditions and no farmer should regard as an expense the building of one or more silos this season to meet the feeding needs of his live stock; rather should he regard it as an investment which for a long number of years will return substantial dividends—with the largest dividends right at the beginning. Fortunate is the farmer who still has on hand plenty of silage to last until this year's corn crop is ready for the cutter; this is the position which each farmer should strive to attain when planning his silage equipment.

We not only reiterate our frequent recommendation for "A silo on every Eastern farm," but we advocate for each farm the storage capacity for as much silage as the stock will consume.

Be Fair to the Boys and Girls

The county agricultural agents in the various states are at this time forming calf, pig, chicken, gardening and various other kinds of clubs among the boys and girls and the work is one which deserves encouragement from all far-thinking people. These clubs are organized, not primarily to make money, but to instill in the young people a love for the country, give them a responsibility to shoulder, teach business methods and possibly to give the older folks an insight into the possibilities of what a little care will do in counting up the final results. It has been too often the case in the past that "Johnny's colt has grown up into daddy's mare," and whereas enthusiasm and anticipation have been uppermost in the thoughts of the child at the outset, disappointment and loss of faith have predominated at the finish. Nothing will go so far toward giving this club movement a good start this year as a little interest and aid given by the parents. Instead of discouraging the boy or girl in their efforts, give them a boost. What if they do want the best acre on the farm, are not they worth it?

Some of the wonderful yields obtained in this work we think have sometimes been upheld and dwelt on too much, as they were the result of exceptional conditions and cannot be generally duplicated, but we do not think that the fundamental idea of the work has been given too much credit. Anything which will give the rising generation a better interest in the farm is worthy of all the time spent upon it. The rewards given to the successful contestants have in many cases been trips which have been wonderful revelations to the winners, giving them a wider outlook on things agricultural. No one who has not talked with a group of these bright, energetic boys and girls, such as those who gathered last October in Springfield, Mass., at the National Dairy Show, can fully realize the wonderful stimulus which work of this character inspires in them. There is undoubtedly a boys' or girls' club of some kind starting this spring in your county, so why not take the opportunity to see what your children will develop under organized effort.

Bulletin Helps for Farmers

"The Small Vegetable Garden" is the title of Farmers' Bulletin 818, and it contains 44 pages of valuable information for anybody who wants to grow some of the family food supply. It has a complete planting table of all the vegetables and gives cultural methods.

Housewives will be interested in Farmers' Bulletin 807, entitled "Bread and Bread Making in the Home." This bulletin not only suggests an easy standard method for making yeast raised wheat bread, but gives receipts for making graham, rye, corn, nut and various other kinds of bread.

Fruit growers will be interested in Farmers' Bulletin 804, a 42-page treatise on the subject of "Aphids Injurious to Orchard Fruits, Currant, Gooseberry and Grape." It is fully illustrated, showing the injury and activities of these pests and treats of methods of combatting them.

These three publications, same as all Farmers' Bulletins issued by the Department of Agriculture at Washington, D. C., can be obtained free by requesting the Secretary of Agriculture at Washington to send you a copy.

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Garden Hints for May

W. F. MASSEY

When cutting asparagus cut well down on the crown of the root, but take care not to injure the newer shoots just starting. Some nitrate of soda scattered along the rows will hasten a rapid growth of the shoots. Where blanched shoots are wanted the soil should be well ridged up over the rows and the asparagus cut as soon as the tip breaks through the ridge. In cutting for market it is well to remember that green asparagus nowadays brings a better price than white, unless the shoots are entirely white like the Columbian. Asparagus seed can still be sown, but should have been sown earlier.

Tomato plants in the frames will need close attention to airing in all sunny weather. The object now is not to make them grow fast, but to get rather short and stout plants gradually hardened to the outer air. In sections where tomato plants cannot be safely set in the open ground till middle of May or later it will be early enough to get the plants in the frames by the middle of April. Here, where we usually set them out the last of April, we set them in the frames the last of March, as they should have about a month of cool growth and hardening.

Sow the Black Valentine bean for the earliest, but do not sow many of them, for while they will stand more cold weather than others, they are not as good quality as others. My own practice is to sow one row of these about 40 feet long and when these are up I sow a couple of rows of Burpee's Green Pod Stringless for green beans and a row or two of Celestial for wax podded beans. This is the most productive bean I have grown.

Of the bush lima beans the Fordhook is the only one that has proved satisfactory with me. The bush varieties of the small lima, like Henderson's, have never given me a fair crop, and for the small lima I would always use the climbing variety. In the South this is called Butter bean and makes a better crop than the large limas. In fact, to my taste the small lima bean is far better than the large limas of any sort. Of the large white lima class the Carpenteria is best.

Sow but little of the Early Egyptian beet, as it soon gets of inferior quality. For a good red beet the Eclipse is far better, and if you do not mind the light color the old Bassano is better than any other early beet.

Sow seed of the Improved Brunswick and the Drumhead Savoy cabbages for late summer and fall use, and in the North late May will do for sowing seed of the later varieties, which we sow the first of July.

Horse-radish sets can be planted between the early cabbages by punching a hole with a dibble or crow-bar and dropping the root in straight. Then after the cabbages are cut the horse-radish will take the whole ground and can be cleanly cultivated.

Cauliflowers should be hurried along with clean cultivation and applications of nitrate of soda between the rows, for we need to grow them rapidly and get them headed before the weather gets too hot. When heading, it is well to turn leaves over the head to protect from the sun.

If carrots are wanted, sow some of the Early French Forcing, which grow as quickly as radishes, but defer the sowing of the late crop till June or July.

Celery plants from seed sown in early April should be transplanted to another bed in rows about 6 inches apart and 2 inches in the rows, nipping the tap roots. In this way you get stout and well rooted plants for the final setting for the winter crop.

For cucumbers I have found David's Perfect to suit me better than others. It is longer than the usual White Spine varieties and a better color.

My earliest planting of corn was New-folk Market planted the first week in April. This is not a sugar corn, but an early dent. Following this I plant Kendall's Giant, and then every two weeks till the last of July plant Country Gentleman and Stowell Evergreen.

Endive of the green curled variety sown now will come in nicely as a substitute for lettuce in hot weather. When the plants are well grown tie up the heads to blanch. Tie when dry or they may rot.

Do not set out egg plants till last of May or early June. There is nothing gained by setting them before the soil is warm and the weather, too.

The early sown leeks should be well cultivated to make strong plants for transplanting after some early crop in July. The Hanson and Wonderful are the best varieties of lettuce for the outdoor crop in spring, as they do not run to seed so quickly as the Boston and other varieties.

While the Pollock of the Rocky Ford varieties will be my main crop of muskmelons, I shall plant this season some of the new Honey Dew, a smooth, white skinned variety of fine quality. They sold in Philadelphia last summer for 75 cents each, and have also been developed at Rocky Ford, Colorado.

The offsets of the Yellow Potato onion will come in nicely to continue the green onions. If seed of the Prizetaker was sown in a frame early, they should now be transplanted in rows 15 inches apart and 3 inches in the rows, nipping top and roots slightly. Set in shallow lines near the surface of the soil.

I start the Pimiento pepper at the same time as the early tomatoes. Formerly I made an early and a late sowing of sweet peppers, but I found last summer that the early sown Pimientos grew and bore heavily all through the summer and until frost, so that there is no longer any need for sowing a late crop.

My second sowing of tomato seed was made on a border in April. These are Greater Baltimore and Maule's Success to come in right after the earliest sorts begin to get inferior. Then in late May I will sow more of these to come in later and give me plenty of well grown green fruits when frost arrives.

Plant okra, Perkins Giant, the middle of May. It starts and grows very slowly until the weather and soil are warm, and then grows like the green bay tree.

My last sowing of English peas was made in April. Northward they may still be planted, but are apt to mildew in hot weather. I sow the old Champion of England for the latest and give them a woven wire fence to climb on.

Spray Irish potatoes with Bordeaux mixture with 1½ pounds of lead arsenate in 50 gallons, and the one spraying will answer to ward off the early blight and get the beetles, too. The sprayings will have to be repeated to get all the beetles. The best radish for present sowing is the Chartier.

Urge the growth of spinach by side dressings of nitrate of soda.

Sow a row of the Lucullus chard to come in and take the place of spinach in hot weather.

Please mention The Practical Farmer in writing advertisers.

Making Concrete Steps

Has it ever occurred to you that the best walks and steps for a farm house should be at the back rather than at the front, because, as a rule, we go in the back door ten times to once in the front door? During this season of the year, if there is no walk between the house and the barn, needless dirt is tracked into the kitchen, which means work for the housewife to remove. One feature which impressed the writer recently while traveling through Bucks Co., Pa., was the great proportion of farm homes which have an abundance of cement walks leading to and from the places which are used every day in doing the farm chores. It does not take much skill, only a little labor and not much expense to have these permanent and attractive conveniences about the place, and the satisfaction which they give to all concerned more than overbalances their cost.

The accompanying illustration or line drawing so clearly explains a simple method of making concrete steps that extended description is unnecessary. The forms have only three sides, one being placed upon the other, with the open side next to the door sill.

In making the steps the concrete should be mixed in the proportion of 1 bag of Portland cement to 2½ cubic feet of clean coarse sand to 4 cubic feet of crushed rock or pebbles. The earth beneath the steps should be excavated to a depth of 6 inches below the surface, the excavation being the exact size of the bottom of the steps. Make sure that the earth is level and compact at the bottom of the excavation. Place the largest box in position around the edge of the excavation, staking it in place at two or three points to prevent shifting. Level the first box very carefully by means of a carpenter's spirit level. The concrete, mixed rather dry, should be deposited in the box and thoroughly tamped and compacted until moisture rises to the surface. Work or spade the concrete thoroughly along the sides of the forms so as to produce a smooth surface. At the front end of the box, where the concrete becomes the tread, the surface of the concrete is carefully leveled off and smoothed with a trowel for a distance of about 12 inches from the outer edge. Immediately after this is done the second and smaller box is placed on top of the first one, being fastened thereto by a few nails through the upright cleats shown in the drawing. The nails must not be so long as to project through the forms and into the concrete. Fill the second box with concrete immediately, being careful that no dirt or other foreign matter falls or collects on the surface of the first batch of concrete, as this would prevent a good bond between the two layers. Finish this step or slab in exactly the same manner as described for the first step. The last or third step is constructed in exactly the same manner as those previously described. The forms should not be removed until the concrete has thoroughly set.

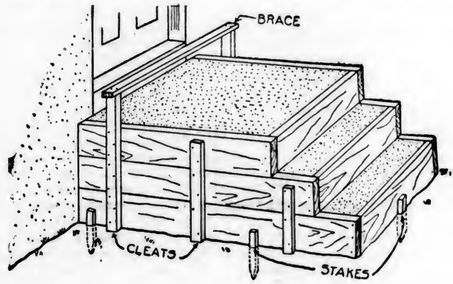
The advantage of using concrete is the fact that it will never warp or decay, even at ground level, thus eliminating necessity for repairs and renewals, as well as making the steps safe for all time. It is an advantage to construct a slab of concrete immediately in front of the steps, thus doing away with the customary mud-hole. This slab can be made in the way sidewalk slabs are constructed; that is to say, the ground excavated to a depth of about 4 inches, and the slab cast on a natural foundation. If the soil is wet it would be better to first put down a cinder foundation to the depth of about 6 inches.

"Wherewith Shall We Be Fed?"

(Concluded from page 178)

they were in the days of the Revolution will be denied. The same spirit now animates the people that did in the days of '76.

But that we should go out and make every effort to increase our crops from a patriotic standpoint without any assurance of a fair return for our labor, while the Government guarantees 10 per cent. on many manufactured products, is going beyond the round of justice and fair dealing. We are willing to exert every effort that ample food supplies may be forthcoming in the year 1917. This food supply will be a benefit to every man, woman and child, not only in America but in many other lands. We believe that the people of America should guarantee to the farmers a fair return for their labors. To this end the Government should fix a minimum price or make an agreement to buy up for exportation and at prices that would appeal to the reason of the American farmer as an assurance that his labors would receive a fair compensation. I believe every sane man who tills the soil will join me in this request; not only these, but those who are conversant with agriculture will feel that this is no more than just. I have talked with certain men who have been to Washington in the interests of the farmer and they state that the Government officials hesitate to fix a minimum price for fear they might be called upon to make good considerable amounts. In the next breath they state that it is impossible to supply the needs of the starving millions across the water. These two statements do not harmonize and many farmers are slow to change their plans which have been formulated during the winter and will not make any extra efforts to increase their acreage.



For years we have worked diligently and with entire success in the matter of feeding the people and in the bumper crop years have met with serious losses. No city has expressed any sympathy or come to our aid. The past winter has seen every effort put forth to lessen the cost of food supplies and every farmer will state without fear of contradiction that the light crops have always been the most profitable.

In the face of these conditions, I feel that it is impossible to get the farmers to put forth their best efforts without some positive assurance from the Government that they will receive a fair compensation for their labors.

Geo. W F. Gaunt, Master New Jersey State Grange

My message to the farmers of New Jersey is expressed in a circular recently sent to the Granges of New Jersey:

Greetings:—In this, the world's greatest crisis, New Jersey Patrons are called on to mobilize their every resource toward feeding not only the people of our own state, but as many without the borders of our state as possible. We are part of the state's organized forces and as such it becomes our duty to co-operate. Upon us falls a serious duty, one that does not call to the front, but calls urgently for us to cultivate to it's capacity every foot of our tillable soil. The state will perform it's service with respect to labor, transportation facilities, etc., and we must not falter for a single moment in fulfilling our part toward a maximum production of staple crops.

This appeal is made to you as a result of conferences held at Trenton, on April 9th and 10th, by the Governor and representatives of the State Board of Agriculture, State Experiment Station, State Board of Education, Department of Conservation and Development and the State Grange resulting in formulating of plans as outlined in the circular which is made a part of this communication.

Each Grange is urgently requested to co-operate in this great "Plenty of Food" campaign. Appoint a committee whose duty it will be to carry to completion as far as possible the provisions of this appeal.

The nation needs you, the state needs you, humanity needs you. Act now, do not delay.

The circular accompanying Mr. Gaunt's letter contains this useful information as to help in the matter of labor:

"1. Relieving high school pupils in agricultural towns of their duties and organizing them for farm work. This will provide several thousand part time workers, many of them at least partly skilled. Some will be immediately available for spring plowing and planting; more will be ready when the crops are ripe. Pickers will be found for vegetables and fruits, but especial provision will be made for the staple grain and root crops. These workers will expect to receive whatever wage they can earn.

"2. Calling to farm service every man who can be spared from other work—especially landscape gardeners and the like. Several prominent land owners have already offered such help.

"3. Registering for service as instructors, foremen, etc., elderly men with farming knowledge but not now actively employed.

"4. Appealing to the owners of all farm tractors and other machinery to make them available to other farmers in their vicinity so that the greatest possible acreage may be plowed and made ready for planting.

"5. Recommending motor truck service to hasten the delivery of fertilizer, seeds and implements, and to relieve the farm teams and their drivers for other work."

As to the crops most needed the circular suggests:

"Every farmer should cultivate during the present season the largest area practicable. It is urged particularly that preference be given to the crops which will yield the greatest food value per acre, and which are readily stored.

"The greatest need is for staple crops like corn, potatoes, beans and various roots. Alfalfa, the most valuable of all hay crops, should be sown in late summer.

"It is impossible to plant too much corn. This crop produces a large food value, lends itself readily to cultivation on different types of soil, does not call for a large outlay for seed and fertilizer, and does not require as thorough tillage as some of the other staple crops.

"Farmers are particularly advised to make the effort to plow such sod land as is likely to be profitable under existing conditions, and to plow such other land for corn as may give promise of producing a satisfactory crop.

"There are large tracts of land in South Jersey which will grow certain varieties of potatoes planted in July. On such soils it is the practice of some progressive growers to start with an early crop like peas and follow it with 'second crop,' 'red skin,' or one of the late blight resistant, potatoes. The acreage of potatoes is capable of being greatly extended in this manner where seed of suitable quality can be obtained.

"Beans, including navy beans, red kidneys and bush limas, are another important staple crop, whose acreage should be increased. Root crops, like turnips and beets, should be produced in larger quantities for human consumption and also for live stock. Other forage crops whose acreage should be increased include mangels, soy beans, and cowpeas. By increasing the supply of food for live stock, the production of meat and dairy products could be materially enlarged."

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TIGHT BINDING

Why Not More Buckwheat?

S. B. HASKELL

In these days of high labor costs, of labor hard to get, and extra hard to keep after getting; of seed potatoes so high as to be almost prohibitive, and seed cost of all spring crops high and going higher, it seems as though there should be renewed interest in that old stand-by, the buckwheat crop. Farmers need a crop which may be easily turned into real money, which uses but little labor, and that at a time when other work is not rushing. And if, in addition, this crop makes minimum fertility demands on the soil, costs but little as to seed, and requires no additional machinery, then we have something that in a spring such as this is even more worth while than usual.

In seeding buckwheat all that is needed is a bushel per acre. This costs just now about $1.30, and compares quite favorably with $2 wheat and 80-cent oats—and for both wheat and oats more bushels per acre must be sown than for buckwheat. In fact the seed cost per acre is lower than for almost any other crop which may be planted this season.

The labor proposition also makes the crop especially interesting. He spoke truly who said: "Life is just one darn thing after another." Year after year the changing seasons demonstrate this to the farmer. In the spring he must get oats or spring wheat planted early, or the crop will rust badly—and this rust cuts both crop and profit. Potato planting must be rushed to get ahead of corn planting, or else corn planting must be pushed to get the work out of the way for potatoes. Now greater food production is certainly needed, and just as certainly will be profitable. It is probable that next fall every bushel of wheat, or of barley, or even of corn, and certainly of potatoes, will mean not less than a dollar to the grower. Still the acres of these crops are not easy to increase. We have just so much labor and so much capital. If we are going to increase crops it must be something which comes betwixt and between, which sandwiches in between the planting of spring sown crops, and before bugs and beetles have to be fought, and corn and potatoes have to be plowed and hoed. Here again buckwheat fits in wonderfully well.

Buckwheat should be sown not much earlier than the middle of June and may be put in almost anywhere, except perhaps on the heaviest of clay soils. It is especially valuable where on account of the rush of work other grains can not be sown, and may be even put on spring-plowed sod. This is especially desirable for grass lands which have become "run out." Regardless of all this, however, the great fact of interest is that it may be put in late, after other crops are planted, and does not add to the rush and worry of spring planting.

Like rye, buckwheat is a typical poor land crop—but on good soils it gives larger crops and larger profits. Buckwheat uses manure to fair advantage, but manure usually pays better when put on corn land. Perhaps under present potash scarcity the best treatment is to use about 200 pounds per acre of a 2-10-0 fertilizer, drilling it in with the fertilizer attachment of the grain drill. With the probability that buckwheat will be high another season even 300 pounds per acre will no doubt pay better, and bring back several times its cost. Nevertheless, buckwheat is better able than most plants to make growth on but small amounts of available plant food.

The writer has seen buckwheat start to grow on soils seemingly as dry as an ash pile. It grows quickly, and makes a crop in from twelve to fourteen weeks, and for this reason is especially valuable in choking out weeds. Right here is a hint of especial value to those farmers who may have fields infested with weeds, particularly the pestiferous quack grass, or couch grass, or dog grass, or witch grass—it matters not what you call it, for the weed is the same in all cases. With labor scarce, a crop which requires no hand labor and which in a normal season will hold its own against weeds of this kind is a good crop to grow. Some farmers have even claimed that they have eradicated this weed by growing buckwheat. The writer has not been so fortunate as this, but does not doubt that it may be done—therefore sow buckwheat on the witch grass field, and put corn and potatoes somewhere else.

Buckwheat is harvested like other small grains. This must be before frost, and may be before the time for shocking or ensiloing corn and before lifting the potato crop; also early enough to be followed by seeding of winter wheat or rye, of grass, or of any green manure crop. Threshing may be done from the field, which is, of course, an added economy.

During the past few years buckwheat culture has increased greatly—relatively more than any other grain crop. For this there can be but one reason, and this is that farmers have found it profitable. With the present great food shortage due to the weather of 1916, there is this year a great opportunity for the crop, and many farmers are planning to utilize this opportunity to the utmost. With wheat high and potatoes almost impossible, buckwheat cakes may regain their old popularity as a staple breakfast dish.

How to Combat Crows

P. F. READERS

What is more discouraging than after having carefully planted a field of corn, given it plenty of fertilizer and making sure that all conditions were right for a rapid and healthy growth, than to come back into the field after a week or ten days to see how it is coming up and find that portions of it have been taken up by the crows? In sections where fields are located along public highways or where there is not much timber land this pest of the corn field amounts to very little, but in other sections where the fields are isolated or adjoin stretches of woods, the problem is not one to be despised. We have always found that a shotgun is about the best remedy, and always try to kill three or four crows as soon as the corn is planted, and hang them by cords attached to one leg on poles placed in different sections of the field to act as reminders to their hungry brothers and sisters. As a rule, a field which is the scene of several "hangings" is left alone.

Some farmers we know believe that they accomplish just the same results by mixing in a little coal tar, which can be obtained in cans at most hardware stores, with seed corn before planting it. A little bit of tar will coat a lot of corn if it is dropped on a panful and then stirred thoroughly with a paddle. Each grain should be coated, but care should be taken not to apply too much. Others we have heard of treat their corn with kerosene just before planting it, and say that neither cut-worms or crows are in favor of such flavoring and that they will leave it alone. If tar is used, wood ashes, road dust or land plaster must be mixed with the corn so that it will not stick to the hands when the seed is planted. If a drill is used this method is almost prohibited, as the corn thus treated will not properly go through the plates. Some say that corn treated with kerosene will not grow; others say it will.

A farmer in Center Co., Penna., says he does not believe in these methods, but uses six or eight looking glasses placed in the corn field to keep the crows away. The looking glasses are hung on a stick about 5 fet high, so that they will turn around with the wind and cast reflections over the field the greater part of the time when the sun shines on them and will protect the corn until it is up. Pieces of bright tin tied together so that they will rattle and glitter in the sun will answer the same purpose.

Some men advocate the practice of spreading poisoned food over various parts of the field so that the crows may eat it and die. A mixture of arsenic, wheat bran and molasses can be used for this purpose. Corn soaked in strychnine and scattered over the field will have the same results, but either practice is dangerous where chickens may get to it or birds of the field which do more good than harm.

We have heard of other men who overcome this difficulty by planting a lot of seed so that there will be plenty for the crows and cut-worms and still enough for a full crop. This means unnecessary work in thinning the corn, but they argue that it is better to pay a man $3 a day to take corn out than to pay one $1.50 a day to put it in, as in one case the crop is growing all the time and in the other case it is taking more of a chance with frost in September. If a planter is used this can be accomplished by having the holes in the plates drilled larger so that more grain will be dropped in each hill or in the row according to the way the corn is planted.

Sometimes a poor stand of corn is blamed upon the crows, when it is really poor seed or poor work of the planter. For this reason before taking the machine to the field it should be jacked up on the barn floor or some other place where it can be easily adjusted and everything put in proper running order so that there will be no delay when the time comes for using it in the field.

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There is now an extra demand for farm laborers to replace the many young men who have volunteered for service in war. The government is urging farmers to put extra acreage into grain. Write for literature and particulars as to reduced railway rates to Supt. of Immigration, Ottawa, Canada, or F. A. HARRISON,
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Cyphher's strain S. C. W. Leghorns, 1 year old hens mated with cockerels. 50 eggs, $3; 100, $5; 500, $23. THOS. H. BARNS, Creston, Ohio.

EGGS, Black and White Langshans, Light and Dark Brahmas, B. P. Rock, Pekin Duck, White African Guineas, $1.25 per 15. Prepaid. M. H. MYERS, Edom, Va.

EGGS $1.00 per 15; $2.00 per 40. From Brahmas Rocks, Reds. 20 Leghorn eggs, $1.00. Catalogue Free. S. G. DEALER, COOPERSBURG, Pa

Profitable Poultry Branch Neglected

F. V. L. TURNER

Nearly every poultry raiser sells off the surplus male population when he is but a "springer," a one to two-pound piece of meat that nets about 30 cents average during the late spring and summer. Now this immature by-product must not be confounded with the fall, winter and early spring broiler; he is a different bird, and very much less profitable. When the spring hatched young male is marketable millions of others of his kind are likewise for sale, therefore, down goes his value.

It is only a single step further in the vast science of profitable farming that permits this low value by-product to be converted into a getter of big money. From 30 cents to $2.40 is a long way on the scale of profits; in the case of young roosters sold at 30 cents each it is a short distance.

Just at the time the young male is ready for market he is ready for transformation into the $2.40 bird. One hundred young males will sell for $30 if marketed in June and July; one hundred transformed cockerels will sell for $240 from December to May. In various parts of the country there are whole sections devoted to this transformation process and every poultry raiser practicing this process is making infinitely more money than the sellers of "springers." When $2.40 is mentioned it is not the high price on the transformed bird, rather it is a conservative price and inclined to the low side.

To transform the price from 30 cents to eight times its volume means nothing more than caponizing, eight pounds at 30 cents being a conservative estimate where ordinary care in feeding is practiced. Ten and 12-pound capons, no uncommon weight, can be raised with certain breeds or crosses of breeds or varieties. Leghorns make splendid capons and are very much in demand, weighing four or more pounds dressed, in the better classes of hotels and restaurants.

Since the conditions about to be imposed upon all food producers requires the utmost effort to meet, and inasmuch as there is at present a decided scarcity of poultry meat, the economics of agriculture make it imperative that not only must production in individual units of every article of food be increased, but better units must be produced.

Capons treble and quadruple the size of the unit; the return is at least 800 per cent. greater than that from springers. Fortunately the cost to produce a capon is so low, in comparison with the production of fall selling roosters, as to raise the capon's value to a highly distinctive plane. At the present price of corn (which is fed to capons) 30 cents will, from the spring chicken age to December, make a 4 or 5-pound Leghorn Capon or an 8-pound Rhode Rhode Island Red, Barred or White Rock or Wyandotte Capon. Brahmas will run very much higher in weight. Caponizing is a simple operation, can be done by the men or women on any farm and the rapidity of the operation is amazing. One bird a minute is not considered speedy. Many professional caponizers make good wages at 3 to 5 cents per bird. The initial expense of a caponizing set is small. With the slight cost attached to caponizing, its simplicity and its handsome returns, coupled with the extreme ease and small attention required to raise the caponized bird the inducement to adopt this branch of the business is greater than any other part of agriculture on the ordinary farm.

Raising Chicks in Brooders

"The use of the coal heated brooder is rapidly taking the place of other methods of brooding chicks, on account of the economy and convenience and dependability of this method," says J. T. Campbell, farm adviser of the Pennsylvania Department of Agriculture.

"I find the mistake is frequently made in having too small a brooder house so that the chicks cannot get away from the heat and are compelled to remain in a dry heated atmosphere. This fault can partly be overcome by having a pile of two or three bushels of sand in the corner of the building kept constantly moist and will go a long way toward producing a more natural condition. The chicks that scratch in a pile of moist sand will be stronger and better for the privilege. I still find many farmers who try to raise chicks on a bare wood floor and generally make a failure of the attempt. All floors where chicks are kept should be covered with at least one inch of clean, coarse sand, and a layer of cut corn stover for litter used on top of the sand."

If these few above suggestions were carried into practice many of the losses incident to chick rearing would be avoided.

Preserving Eggs

The cost of preserving eggs, according to L. S. Kleinschmidt, of the department of animal husbandry at the Pennsylvania State College, is approximately one and one-half cents a dozen for the waterglass. Only clean, strong-shelled eggs should be used for preserving. They should be placed in the jar with small end down. Any vessel which is impervious to and does not corrode in water is suitable for the water-glass solution. Glazed earthenware, galvanized or wooden vessels, are generally used. The earthenware jar is usually preferable, and can be used for several seasons.

Six ounces of water-glass will preserve 40 eggs. A gallon container will hold that number. For use, one part of water-glass should be stirred into nine parts of boiled water. The water-glass may be added to the water either before or after it is cooled. Containers should be scalded previous to using. The solution should be cool before the eggs are placed in it. The vessel should be just large enough to hold the eggs submerged two inches below the surface of the solution. This will allow considerable evaporation without exposing the eggs. The container should be covered and stored in a cool place.

No More White Diarrhea
"This is our experience in raising chicks last spring. We never hatched out more than a few chicks by the old hen method before, so never considered it any great loss if we should lose a few, but last spring we bought a 144-egg incubator. The first hatch brought about 100 chicks. I was delighted, but in a few days one after another became affected with White Diarrhea, till about half of them had died in ten days. I was discouraged. Some time later, I came across an advertisement in a farm paper about IOWITE Chick Tonic. I sent to The Wight Co., Dept. 597, Lamoni, Ia., for two 50c. packages and it came before I got my second hatch, which brought me 111 chicks. I began giving IOWITE Chick Tonic right away and never lost one of them. At three weeks, some of them were as big as those from the previous hatch, and I never saw a livelier bunch of chicks. I would no sooner think of raising chicks without IOWITE Chick Tonic than I would try to raise them without food."—Mrs. Clare Rust, Grantsburg, Wis.—Adv.

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Complete set of reliable, practical, easy-to-use Capon Tools —full, illustrated instructions included. Parcel Post prepaid.
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J. S. HAUPT FARM, EASTON, PA.

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Well hatched, well bred, from best heavy-egg strains of Reds, Rocks, Leghorns, Wyandottes, Cochins, etc. FREE BOOK tells how to make more money from poultry.
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Chas. McClave, Box 5, New London, Ohio.

YOU'LL FIND OUR WINTER LAYING WHITE LEGHORNS and our Free Catalog (Utility Facts) both Profitable and Interesting. Stock, Eggs and Chicks.
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W. WYANDOTTES Royal strain, pen average 209. 15 eggs, $1.50; per 100, $6.00.
INDIA RUNNER DUCKS 13 eggs, $1.50; per 100, $6.00.
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TIFFANY'S Superior Chicks That Live Silver, White and Columbian Wyandottes S. C. R. I. Reds, $15.00 per 100; $165 per 1000. Pekin and Rouen ducklings, 30 cents each; $25 per 100. Catalogue.
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FOR SALE. Pairs, trios, pens; all varieties. Rocks, Reds, Wyandottes, Leghorns, Orpingtons, Andalusians, Campines, Hamburgs, turkeys, ducks and geese. Prices low. RALPH H. BARY, R. 6, Millersburg, O.

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Buff, White Leghorns, S. C. R. I. Reds, Eggs 90c per 15; $1.50 per 30; $4.00 per 100. S. C. Black Minorcas, Mottled Anconas $1.00 per 15; $1.75 per 30; $5.00 per 100. Catalogue free. JOHN A. ROTH, Quakertown, Pa.

EGGS, 15, $1.00; 30, $2.00. Thoroughbred Rocks, Wyandottes, Reds, Hamburgs, Leghorns, 19 varieties. Also Brahmas, Orpingtons, Houdans, Campines. 25th year. Catalogue. S. K. MOHR, COOPERSBURG, PA.

EGGS from pullet bred Barred Rock hens with certified records up to 255 eggs, mated to male from high producing hen. Three dozen per fifteen, delivered. Clarence Young, Sweetwater, Tenn.

60 Varieties Poultry. Turkeys, Geese, Ducks Guineas, Bantams, Hares, Cavies, Pups, Stock, eggs low. Catalogue free. Pioneer Farm, Telford, Pa.

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Thoroughbred Poultry, Eggs, Pigeons Order now. Get choice. All varieties. WILLOWSPRING FARM, Marietta, Pa.

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OUR EXPERIENCE POOL

All our readers are invited to contribute their experiences on the topics under discussion. $2.00 will be paid for the best, and $1.00 for the next best contribution, and 50c for each other article published. Contributions must be in our hands 15 days before date of issue.

TOPIC No. 1219, MAY 15.—What machinery have you found essential to successfully handle the hay crop? Tell us in not more than 250 words what you consider the most important features of this annual hot-weather job.

TOPIC No. 1220, JUNE 1.—When cutting wheat do you haul it direct to barn, shock it or stack it in the field? How much can you cut in a day? Ever use a tractor to pull the binder or have a small engine to run it? What about putting covers over shocks in case of rain? Tell us in 250 words of any other methods used in getting this valuable crop under cover.

TOPIC No. 1221, JUNE 15.—What are you planning to sow for a cover crop at the last working of the corn? How much seed do you use per acre and how do you sow it? Does it make enough growth to pasture when the corn is cut? Did you ever get a field into sod this way? How many times have you cultivated your corn?

Topic No. 1218.—How are you fixed for labor this season? Do you find it better to hire by the month or day, and what do you pay?

W. J., Pierpont, O.—We have no help aside from that promised months ago for haying this year. It is now early April and one of the men engaged is liable to military service. Possibly the writer, past thirty, will be called on for mobilization, but myself and father, age 67, plan to do the farm work. Aside from haying time I plan to milk our 25 cows, with the aid of the mechanical milker. This will enable me to do the work which required three heretofore. While milking, the 3-horse team will be fed and harnessed and other chores will be done. We use a riding plow, and my father prefers using it to anything which he might do. I can reach the field with another 3-horse team shortly after my father does, and in this way I can fit ground closely behind him. We are adding to our equipment this year a rotary harrow to be attached behind the plow, and a small roller. These will be particularly valuable in fitting ground perhaps in June for buckwheat, and during August for vetch and rye, and later for wheat.

It will be necessary for me to leave the field much earlier than my father, but the mechanical milker will permit him not less than an hour and a half longer to work the horses, and the milking will go along as well; anyhow, this was our experience last year after installation of the machine. We will check-row all our corn and cultivate both ways. By frequent harrowing before corn planting and for a time afterward we can eliminate hoeing, we believe. It is our hope to raise more and better crops, if possible, than heretofore, and this is only possible through the installation of labor saving equipment, and working it systematically.

E. A. W., Street, Md.—I do not see that labor conditions will make any important changes with us, so I give the case of a friend. He says: "I am not worrying about labor. Unless a war draft takes them I will have enough month help to squeeze through on, though I have a notion to hire another man for safety. I have already got more than usual, as I want to plant more potatoes and silage stuff and maybe beans.

"Of course, I will want some day help now and then, but I will make little do. Fifteen cents an hour and board counts up faster than thirty a month with house and firewood. I find it pays to give twenty cents an hour, cash down, when I really need help—I get better men and get them when I want them.

"My rich neighbor over on the hill, is not going to farm much, because he can't get help for twenty dollars or less, with house only. A man can't live decently on that even without a family. I don't want my men to look half starved and then have to beat the storekeeper out of enough clothing for their families. Over in the next county (about twenty miles) they are paying $30 and $35 with board and house—when they have a house.

"I expect to farm a little more than usual and I haven't any new equipment except a new riding 2-horse cultivator and an extension for my hay carrier track in the barn. I have got all the usual planting and harvesting machinery and manure spreaders—things to make the work move quick without taking too much out of the men and teams."

That is why he can always get men without paying extra wages.

H. C. McC., Ashville, N. Y.—Under present conditions it is not only almost impossible to secure a man at all, but if a large share of the farmers would take the time to figure a little they would find that it does not pay them to hire, and that they would do better to substitute up-to-date machinery, etc., so far as possible and thus cut their work down to where they can do it themselves.

By the use of the manure spreader, sulky plow and other riding tools, their own efficiency may be greatly increased; and the automobile is fast becoming one of the greatest time savers on the farm. The numberless absolutely necessary trips may be made with the car in a fraction of the time previously required, and the time thus saved can be utilized to excellent advantage during the busy season. My neighbor is at present hiring a man for $20 per month in winter and $25 in summer. During sugaring he hired an extra man when necessary at 20 cents per hour, dinner and supper included. Another hand, by the month, would be an extravagance, because the extra work accomplished would by no means compensate the employer for the extra expenditure.

W. F. K., Blue Ash, O.—The labor question is one of the farmer's greatest problems and it seems that it will be even greater this coming summer. We find it the most practical and satisfactory to hire by the day, and wages are from $1.50 to $2 per day. The advantage of this system is having the labor only when needed, as weather conditions oftimes interfere with work. Where one has, or can provide, steady work in winter as well as summer I believe it would be the best plant to hire a man by the month, or better, by the year. A farmer of my acquaintance has in his employ a married man by the hour. This man lives in his own house and is ready when needed. Last year he received 16 cents and this year will receive 20 cents per hour. This is possibly an ideal arrangement, as it permits of no standard number of hours per day and neither is imposed upon. A long day, as in harvest time, brings extra pay, and on short days in winter or inclement weather his hired man is not forced to expose himself. Our farm being small, we have not made any material change in our plans, but we are adding, or will add, all improvements and labor saving devices possible, not just because we cannot obtain sufficient help, but because they are money savers and therefore profit makers. Some of these may be mentioned as follows: More barn room; cement floors; covered barnyard, with water tank inside; manure pit and litter carrier; silo; dairy house and equipment, including cream separator, power churn, butter worker, etc; workshop, with tools; better fences; manure spreader; gasoline engine, etc. We farmers must plan for greater efficiency and the saving of labor must receive first consideration.

S. M. T., Chester, Pa. — The labor problem in localities close to the large cities presents many serious moments to the farmers so located. Men are being sought for the munitions plants and are paid enormous wages, which the farmer cannot hope to meet. Ordinary team drivers are getting $3 per day of nine hours, so that there is little left for the farmer. We are paying one man $2.50 per day of nine hours and another $40 per month with house rent, garden and milk thrown in.

We like to have a steady man by the month and then hire one or two by the day, but now we take what we can get and keep them as long as we can. Our present monthly man we have had five years. Because of the labor scarcity and other conditions we have sold a part of the farm, keeping only enough for us to work ourselves in case we should have to be without men for any length of time. We have all kinds of machinery to save labor, milking machines, tractor, hay loader, corn binder, etc., in fact, we aim to do as much as possible with machinery.

We have changed our rotation to omit wheat because of the expense of raising and threshing, and aim to grow only feed for our dairy. I might add, however, that because of our improved methods of carrying on work we have been able to keep men on the farm while other farmers have not had such fortune, showing that the ordinary farm hand appreciates to a certain extent working with modern tools.

E. J. J., State College, Pa. — Unless the farm is quite large enough to provide work all the year around for the hired man, it is certainly much cheaper in this section to hire by the day than by the month. It is very hard to get labor of any kind, but at the prices per month that the average farmer can afford to pay it is almost impossible to get a competent man. Last year on account of the high prices offered in munition and other factories, farm help was very scarce. This year, from present indications, conditions will likely be worse. Prices per day, last year, in this locality were $1.50 with board, but it was almost impossible to get any one.

The greatest help we have found here is in using machinery instead of men wherever possible. The gasoline engine has been the greatest help, combined with the best machinery we can buy for the various operations. If I had a farm of size large enough to warrant it I would invest in a farm tractor; and I believe the day will shortly be here when their price will be reduced to such an extent that the owner of even the small farm will find it economy to purchase one. Next to the gasoline engine I place the milking machine, in saving man labor. All in all, I feel that machinery is the only solution that the farmer today can find for the labor problem, and that the sooner he recognizes it the better it will be for all concerned.

P. H. T., Peace Dale, R. I.—As a farmer who has grown up with the business, the labor question proves quite a puzzle to me. Every nationality seems to have had their day. Twenty years ago nearly every farmer had Swede hands. A few years later one could hardly find a Swede—the Poles had taken their place. Then came the Irish and for the last eight years we have employed natives of the Samoan Islands, called by most people Portuguese. When they come in green to this country we can get them for about $22 per month and bed and board. After being here a year they get about $30 per month. We keep this kind of help about seven months, from March to October. We employ about three experienced farm hands the year round. They get about $45 per month; sometimes we may get them for a little less but not very often. We find it much better to hire by the month than by the day; it saves the time of always hunting up some one; besides, when you have a month hand he can find something to do to earn his wages and you have him for a time of profit. Although sometimes in the rush season we employ a few day hands which we pay $1.75 per day. I remember years ago when depending on day labor I put in a large piece to carrots and I was figuring quite a bit on them, but when it came time to weed them I couldn't find a soul to help me for love or money. So my time, seed and fertilizer were thrown away. I have a seed drill and wheel hoe for my garden. They will do the work of ten men at planting and hoeing between the rows.

A. B. H., Green Mills, Pa.—We feel that we cannot afford to pay $3 per day of nine hours all through the summer for extra men, so we are going to depend more on live stock than we have before. Our section is seriously affected by the demands for labor from the munitions plants only a short distance away, and if we do not guarantee steady work we cannot get the extra men for even the high rate they are asking. We intend to handle our work as best we can, my son and I, but will make use of all the improved machinery possible. We are counting on getting a number of young or dry stock and allowing them to pasture a couple of fields which we had hoped to plant. Stock of all kinds we figure will sell high this fall and possibly we will make as much this way as if we tried to plant more than we can properly care for.

Canada Offers 160 Acres Land Free to Farm Hands

Bonus of Western Canada Land to Men Who Assist in Maintaining Needed Grain Production.

The demand for farm labor in Canada is so great that as an inducement to secure at once the necessary help required, Canada will **give one hundred and sixty acres of land free as a homestead** and allow the farm laborer, who flies on land, to apply the time he is working for other farmers as residence duties the same as if he had lived on the land he had applied for. This offer made only to men working on Canadian farms for at least 6 months during 1917, thus reducing the necessity of actual residence to 2 years instead of 3 years, as under usual conditions. This appeal for farm help is in no way connected with enlistment for military service but solely to secure farm laborers to increase agricultural output. A wonderful opportunity to earn good wages while securing a farm. Canadian Government will pay all fare over one cent per mile from St. Paul and Duluth to Canadian destination. Information as to low railway rates, etc., may be had on application to

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3 Delaware farms for sale. 169 acres well built, 3 profitable farm $7500.00; 120 acres, cosy buildings, plenty fruit $3000.00; 101 acres new buildings, fine place $4000.00. MATHIAS HAHN, Greenwood, Del.

The Women's Exchange

This is the farm women's *own* department—for them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

MAY 15.—During the hot weather what kind of a stove do you use for cooking and where is it located? How do you get hot water? What have you found the best way to keep a stove polished? Tell us in not over 250 words any unusual arrangements you have for doing summer cooking.

JUNE 1.—For home canning do you prefer tin or glass jars, and why? What things out of your own garden do you can? How large is your family and how many quarts do you can each year for home use? Tell us your method of canning one particular thing.

JUNE 15.—How do you dispose of the spring cockerels? Do you sell all your males or take them away from the hens now that the hatching season is over? What is the best way to kill a chicken? Do you make any use of the feathers? Tell us of any other way you begin about this time to reap the reward of early hatching.

Get your contribution in early If it does not reach us at least 15 days before the date of issue, it will be too late.

How do you overcome or lighten the burdens of housecleaning?

Mrs. E. G. F., Dryden, N. Y.—The semi-annual cleaning used to be a great bugaboo to me, and would be now if it really was a semi-annual affair. But I have reorganized my household furnishing and equipments until the annual or semi-annual cleanings are very light tasks—meaning only papering or painting and similar fundamental operations that are soon done. Other cleaning operations are done at frequent intervals as they need doing in the course of daily life. This change in methods was brought about first by discarding all carpets, using rugs instead, that are easily taken up or moved about without upsetting all the orderly arrangements of the room or house. Borders about the rugs are either painted, varnished or of some washable material like wood linoleum. A vacuum cleaner and frequent periodical attention keeps the floors of the whole house in good condition. I consider this the main item in house cleaning.

Then my walls receive different attention nowadays. In the living rooms and bed rooms I use paper of a good quality, and find it saves much labor and is cheaper in the end. Careful use of fly screen, etc., keeps them in good condition for four years' use, usually. For the kitchen I use only varnished tile papers, with white oilcloth where much spattering is apt to occur; also white oilcloth on pantry and cupboard shelves. All these surfaces are washed off with a soft cloth quite frequently.

Then I have discarded all lace curtains. I use only soft marquisettes, madras or scrims that can be washed and ironed quickly, with no starch, making it possible to have fresh curtains back in their place in a few hours time.

I try to keep old clothing, old books, papers, magazines and rubbish generally from collecting in store rooms and closets, shelves and bureaus and this simplifies the cleaning of these places. And then I try to do my cleaning early, with the first warm, sunny days, so that when real spring comes I am ready to enjoy it, to make garden, to fuss with chickens, attend to my flowers and take a few trips as opportunity offers.

E. S., Hepburnville, Pa.—The greatest help for house cleaning I have found is the vacuum sweeper. This is used daily in the living rooms and weekly in the bed rooms, thus doing away with the necessity of taking up carpets semi-annually. Before beginning house cleaning be sure you have on hand plenty of cloths for mops and dusters, tacks, nails, hammers, carpet thread, brooms, ammonia and paint and varnish is necessary, so that you need not stop while some one goes to the store for essentials. The oiled mop and oiled dusters help in keeping the dust down. Household ammonia is used in water for cleaning woodwork and windows. For polishing furniture put 2 tablespoonfuls of olive oil in a basin of hot water, wring cloth from this and go over furniture; polish while damp with dry cloth. Closets, cupboards and boxes are cleaned at odd times before the grand upheaval. Go over closet floors with turpentine rag after cleaning for moths. Clean one room at a time and set in order before doing another. Do not have the whole house upside down because it is house cleaning time. Fly swatter, fly poison and fly paper used religiously during spring, summer and fall will lessen labor and house cleaning.

E. J. H., Milan, Pa.—I like to do my house cleaning early, and begin with the writing desk, bookcase, sideboard, cupboards and drawers. When ready to clean the rooms a dustless dustcloth fastened over a light broom, making quick work of cleaning walls and ceiling. With a good vacuum cleaner mattresses and upholstered furniture, as well as carpets, can be cleaned much easier and will be much cleaner than when taken out of doors and beaten. For the doors and windows I have a mop-stick that will hold either mop or brush. I use the brush first, dipping it in a pail of hot suds and scrubbing anything that needs it from ceiling to floor, without having to climb up or stoop down. When through with the brush I use a soft mop with a pail of clean water and a mop wringer. I wring out the mop and wipe off any soapy water that has been left by the brush. For painted and varnished floors the triangle polishing mop with some good furniture polish both cleans and polishes and can be pushed into corners and under heavy furniture where the ordinary mop will not go. With good system and the right kind of tools to work with house cleaning does not need to be any harder than any other kind of house work.

B. R., Wirt, Ind. — House cleaning need not be the occasion for a domestic upheaval if one uses judgment and forethought. First clean the attic or store room, to be in readiness for discarded articles; also the closets may be thoroughly overhauled on bad days before the real house cleaning begins. When a room is once dismantled I think it best to set it completely to rights before one commences on another, taking each room in turn in a leisurely manner and not as if the whole thing must be completed in a day. This hurry and bustle and confusion is what makes the housewife so tired and discouraged when house cleaning is nearly but not quite completed. I always leave my kitchen until the last and aim to have plenty of bread baked and try to have boiled dinners while I am cleaning. Before hanging away winter clothing it is good to hang it on the clothes line in the sun and to brush it well also, then store as usual.

If I must wash bedding I aim to get it done before the cleaning proper is taken up. A little enamel applied to iron beds, and some varnish to the other scarred pieces of furniture works wonders. Try using scrim curtains once instead of lace and I feel sure you will thank me for the advice if you must wash your curtains yourself.

Have plenty of clean, soft cloths and whatever supplies you need on hand and carefully plan your work. Don't expect to be overcome with fatigue and you won't be.

Mrs. B. R. M., Huntington, W. Va.—My greatest comfort at house cleaning time, and help in keeping the house livable at all times, is the floors we now have. Laid by the master himself, across the old ones, they are tight and warm enough to allow the use of rugs in place of carpets. Hard-woods are best, but ours of pine have taken a fine finish. They are stained and varnished and can be cleaned with the prepared mops and oils like hard-wood. I waxed the old walnut stairway and we use rubber treads upon it. Upstairs a border of linoleum in the bed rooms, with 9x12 rugs, is used. The hall is covered with linoleum with a 2-foot runner laid over it. Linoleum laid solid in the kitchen, a rag rug in the dining room, with the front hall and sitting room floors waxed, and a few small rugs scattered where needed, finish our floors. Our porches are painted with deck paints. A long-

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A loan made for improvements which includes radiator heating is much easier to make because the investment in an IDEAL Boiler and AMERICAN Radiators makes the property so much more valuable and adds immensely to the happiness and permanency of the family on the farm. Young and old benefit by it. It is a large dividend-paying investment and soon repays the first cost in a few years. Radiator heating makes any old property modern, healthful, economical and in the "A" class for selling or renting.

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AMERICAN RADIATORS & IDEAL BOILERS

The women folks ought to have a portion of the improvement money spent for their comfort. The success of the farm depends upon the health of your wife and the comfort and convenience of your home. You and your family must be comfortable during the long winter season and the raw, chilly Fall and Spring.

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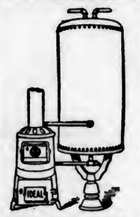
IDEAL Boiler is set in cellar, side-room or "lean-to;" and same water is used for years. Put an IDEAL Boiler and AMERICAN Radiators in your house this year. Call up the nearest heating contractor and ask him to give you an estimate. Spend part of the Bank loan for this permanent, economical, dividend-paying heating outfit. Thousands of farmers say it's the "best in the world."



Our IDEAL Hot Water Supply Boilers will supply plenty of warm water for home and stock at small cost of few dollars for fuel for season.

A No. 4-22-W IDEAL Boiler and 420 ft. of 38-in AMERICAN Radiators, costing the owner $980, were used to heat this farm house. At this price the goods can be bought of any reputable, competent Fitter. This did not include cost of labor, pipe, valves, freight, etc., which vary according to climatic and other conditions.

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Our large 48 page book "Ideal Heating" is full of illustrations—will give you much valuable information on the subject of farm house heating. Read it through before buying any kind of a heating outfit.

Sold by all dealers. No exclusive agents. AMERICAN RADIATOR COMPANY Write to Department F-46 Chicago

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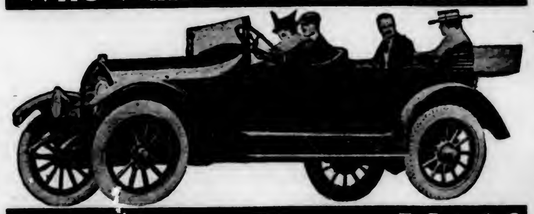
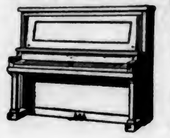


Who Wants A Piano or Watch?

A 1917 Overland Automobile, a fine Piano, Diamond Ring, Victróla, Gold Watches, Silver Set, Dinner Set, Cash, etc., will be given away in our big Free-for-All Spring Contest to people who answer this advertisement. We have already given away almost half a million dollars worth of prizes to advertise THE FARMER'S WIFE.



No matter where you live, you stand the same good chance. Fill out the coupon or send us a letter.

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St. Paul, Minn.

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Tell me all about the 10 Grand Prizes you are giving away.
Name
P. O.
State R. F. D.

handled brush for dusting, a mop bucket with wringer attached, make cleaning the "worst ones" easy to what I can remember.

A word of caution: Use the prepared cleaners and oils recommended by the paint and varnish manufacturers, as strong soaps will soon ruin any painted surface.

Mrs. W. R. B., Blanchard, Pa.—House cleaning is unpleasant work the best we can do, but I do not think it need be the nightmare we sometimes make it. In February I start cleaning cupboard, closets, drawers in bureaus, buffet, desk, etc. I spend about one-half day a week on this work. Next I clean attic and cellar, but do not start the real cleaning until the weather is comfortably warm. With the time consuming closets and drawers disposed of, I take the rugs and furniture out of several rooms at once. And this is the real time saver. When I am in the work of dusting walls I do both, and the same with window washing, floor scrubbing and all the various operations. Being "speeded up" on a certain task I save time when I repeat the same work, and it does not take nearly so long to do the two rooms together as if does to do them separately.

I own an electric vacuum cleaner, a good equipment of wall, floor and other brushes, have a self-wringing mop for the floors, and a large chamois for window washing. The vacuum cleaner I do not use for rugs at house cleaning time, but it is a great labor saver in cleaning mattresses and upholstery.

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Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8229.—Ladies' clothes-pin apron. Cut in one size. The apron is cut in one piece and slips on over the head.

8261.—Children's dress. Cut in sizes 2, 4, 6, 8 and 10 years. The dress is cut in one piece and the pattern provides for separate bloomers.

8273.—Ladies' dress. Cut in sizes 36, 40 and 44 inches bust measure. The dress is cut in one piece and has a belt and sash ends.

8232.—Girls' dress. Cut in sizes 6, 8, 10, 12 and 14 years. The dress is cut in one piece and the fronts are gathered at the shoulders underneath pockets.

8259.—Ladies' dress. Cut in sizes 36 to 42 inches bust measure. The dress closes at the front and has a 5-piece skirt.

8240.—Ladies' blouse. Cut in sizes 36 to 42 inches bust measure. The blouse has Duchess closing in front and the sleeves may be long or short.

8241.—Ladies' skirt. Cut in sizes 22 to 30 inches waist measure. Skirt has a one-piece gathered skirt section which is joined to a straight yoke with tucks.

8236.—Boys' suit. Cut in sizes 6, 8, 10, 12 and 14 years. This suit consists of a plain coat and full knickerbockers.

8269.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in one piece and has a straight lower edge.

8266.—Ladies' dress. Cut in sizes 36 to 42 inches bust measure. Long or short sleeves may be used and the skirt is cut in one piece.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

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Advantages of the small rug are many. They are easy to clean and are cleaned every week instead of every spring. They are more sanitary than the old carpet. They need not reach under pieces of furniture, making cleaning difficult. They come in attractive designs and colors.

For bed rooms the fibre and rag rugs are ideal and very inexpensive. Cleaning is much easier where two or three small ones are used, instead of a large one which reaches under the bed.

The best rug in the house should go in the living room. It gets more wear and needs to be of good material. Body Brussels, Wilton velvet and velvet rugs are the best. Axminster does not wear well. Two feet from the wall is near enough for the edge of rug—leaving room to set the piano and other furniture on the bare floor.—Nellie M. Killgore, Colorado Agricultural College.

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The Practical Farmer Live Stock *and* Dairy Section

Trademarks of Breeds

J. HUGH McKENNEY

Of what value are the so-called fancy points, such as color and markings? Judging from the attention received from breeders, they are evidently of importance. From an esthetic standpoint they are, of course, quite legitimate and it is usually in this respect that the average person views them. To one not well versed in live stock these present the most striking difference that distinguishes one from another. A Jersey cow is recognized by its fawn color and dark muzzle. A novice knows a Holstein because of its black and white spots, but if there is a white belt around the middle he calls it a Dutch Belted. Herefords are known by their white faces, while almost any cow of a red, white or roan coloring passes for a Short Horn. Doubtless if the white face of a Hereford were painted red to match its body there would be another addition made to the last named category. Of course, the experienced stockman would rate other characteristics such as conformation, shape of horns and so forth. These fundamental differences are more or less marked in all cases, yet color seems bound to serve as a convenient and conspicuous label for the breeds.

Fixing desirable types is a complex problem in itself. Unless, therefore, a definite gain is made in securing useful qualities the practical breeder is wasting his time in going after color, markings and the like. If they are of no value why should he pay any attention to them? Why not work along those lines that promise the best monetary returns and let the other things come out as they will? A tendency in this direction has been noticeable in recent years among the dairy breeds, emphasis being placed on performance and greater latitude allowed as to exact coloring. But while it would be folly for a breeder to concentrate all his energies in ideal markings, he would still be unwise in going to the other extreme. By preserving a proper balance he stands to be the gainer.

Take the Holsteins as an example. They have been in process of development for—no one seems to know how long—always with the object of milk production in view. Gradually their characteristics became fixed and no class of cattle breed truer to type and color. It is fairly safe to infer, then, that the markings represent certain combinations of character which in the course of evolution have been developed for economic purposes. That is, their presence guarantees to a certain extent the animal's capacity for producing milk. If one is engaged in cow improvement solely for his own personal use as a dairyman, the milk is the thing. He is not likely to ask her to present a certificate of character properly proportioned in black and white. Having an intimate knowledge of her capacity, that is enough for him. In the case of a breeder, however, the situation is different. He is in the market to sell stock. A cow to find favor in his eyes must not only come officially recommended, but, like a consignment of merchandise, show on her own back the trade mark of excellence. With him it might almost be said the trade mark is the thing.

The main excuse for a trade mark is to prevent fraud. In putting out his brand of goods the manufacturer warns the public to beware of spurious imitations and proffers the information that his offerings are genuine. This applies just as appropriately to the sale of live stock, for if an animal drops an offspring that is decidedly off color we are at once suspicious as to the purity of its breeding. Suppose, for example, that Holstein cattle had no regular color and could be registered regardless of this or the kind of markings they possessed. Would it not be comparatively easy for an unscrupulous breeder to sell a cross-bred calf as a pure-bred? Then there is always a danger of accidental or unintentional cross-breeding, and against these the standardized markings act as a fairly effective check. Of course, the trade marks of a breed cannot always be accepted implicitly as a guarantee of purity, for the associations between it and the other deeper qualities may be broken up. For instance, the Hereford tends to transmit its white face to its offspring, to whatever it may be bred, so that the cross-bred offspring may bear the Hereford trade mark. In the next generation it may come into entirely new associations, and here is the advantage of having a trade mark which is complex. A Hereford crossed with a Polled Durham would give offspring with red bodies and white faces, but they would be polled. If crossed with a Polled Angus they would not only be polled, but their body color would be black instead of red, although the white face would still be one of the dominant characters.

Attempts are frequently made to determine the breeding of these cross-breeds as indicated by the most prominent trade marks presented as in the case of winners at our fat stock shows. For example, some may remember Challenger, the prize fat steer at the International several years ago. He was listed as a grade Hereford, his dam being a cross-bred Holstein-Short Horn cow. He, himself, was blue-gray in color, white-faced and polled, and greatly resembled a Hereford-Angus cross. These striking characteristics of several distinct breeds gave rise to some strong claims and considerable discussion by admirers of the breeds in question.

It must be remembered, however, that the breeder's job is no sinecure as it is. If led to give more attention to the trade mark idea he is apt to neglect the still more important problems already in hand, as has frequently been done in the past. To dispense with the former altogether would hardly be advisable for the following reasons: It affords a convenient means of identifying the breeds. It is a means of protection for the purchaser, for, unfortunately, some breeders are dishonest. It is an aid to detecting mistakes or unintentional crossing of breeds. A herd of uniformly and beautifully marked animals has an esthetic value that breeders do not care to disregard. Our method of keeping records and pedigrees is not yet sufficiently accurate and complete to stand alone. While these conditions exist there is still considerable reason for fancy points in utility breeds.

Stockyards Sales Prove Silage Best

The value of corn silage for beef production has again been clearly demonstrated by careful steer feeding experiments at Pennsylvania State College.

Sixty head of cattle which they had been feeding for 140 days during the past winter, were sold April 16th on the Pittsburgh market and the tabulated results will be valuable to those interested in this class of live stock.

Five lots of 12 cattle each were used to study the value of different rations in feeding medium weight cattle under Pennsylvania conditions. The object in shipping the cattle to Pittsburgh was to determine the shrinkage in the various lots from the feed lot to market. The cattle were in transit about 28 hours, and had an opportunity to rest for 36 hours before they were sold and weighed.

Lot 1 received a ration of corn silage, all they would consume, supplemented with 2½ pounds of cotton seed meal per 1000 pounds live weight daily during the first 84 days, and 3½ pounds during the last 56 days.

Lot 2 received corn silage as roughage during the entire period. Cotton seed meal was fed at the rate of 2½ pounds per 1000 pounds live weight daily. During the last 84 days ear corn or shelled corn was allowed in addition to the corn silage and cotton seed meal.

Lot 3 received mixed hay and corn stover as roughage. Ear corn was allowed in approximately the same amount as secured in the silage in Lot 2 during the first 56 days. During the last 84 days it was increased so as to allow approximately the same amount as secured by Lot 2 from silage and the ear corn supplied. Cotton seed meal was allowed at the rate of 2½ pounds per 1000 pounds live weight daily.

Lot 4 received corn silage in such amounts as they would consume in one hour morning and evening. During the day they had access to shredded corn stover. Cotton seed meal was fed at the rate of 2½ pounds per 1000 pounds live weight daily during the first 84 days; during the last 56 days it was increased to 3½ pounds per 1000 pounds live weight daily.

Lot 5 received shock corn, mixed hay and cotton seed meal at the rate of 2½ pounds per 1000 pounds live weight daily.

The feeds were all of good quality, except the shock corn which was fed to Lot 5, which was not of a high grade.

The results obtained in these experiments show a very marked advantage in favor of silage in beef production. The two lots of cattle, Lot 1 and Lot 4, of 12 cattle each, receiving no corn except that secured from silage, made an average daily gain of 2.08 pounds per head dur-

House and Horse Barns at Folly Farms, Pa., One of the Most Extensive Breeders of Registered Percherons in the East. *See Article, Page 188*

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No one truly appreciates the advantage of finished floors and small rugs except those who have gone through those good old days of hair-raising, carpet-beating and carpet-beating sessions, when father and brother beat the carpets, and father and mother labored with the carpet stretcher and tack hammer. Let us hope the day of the carpet-covered floor is forever past.

Advantages of the small rug are many. They are easy to clean and are cleaned every week instead of every spring. They are more sanitary than the old carpet. They need not reach under pieces of furniture, making cleaning difficult. They come in attractive designs and colors.

For bed rooms the fibre and rag rugs are ideal and very inexpensive. Cleaning is much easier where two or three small ones are used, instead of a large one which reaches under the bed.

The best rug in the house should go in the living room. It gets more wear and needs to be of good material. Body Brussels, Wilton velvet and velvet rugs are the best. Axminster does not wear well. Two feet from the wall is near enough for the edge of rug—leaving room to set the piano and other furniture on the bare floor.—Nellie M. Killgore, Colorado Agricultural College.

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8229.—Ladies' clothes-pin apron. Cut in one size. The apron is cut in one piece and slips on over the head.

8261.—Children's dress. Cut in sizes 2, 4, 6, 8 and 10 years. The dress is cut in one piece and the pattern provides for separate bloomers.

8273.—Ladies' dress. Cut in sizes 36, 40 and 44 inches bust measure. The dress is cut in one piece and has a belt and sash ends.

8232.—Girls' dress. Cut in sizes 6, 8, 10, 12 and 14 years. The dress is cut in one piece and the fronts are gathered at the shoulders underneath pockets.

8259.—Ladies' dress. Cut in sizes 36 to 42 inches bust measure. The dress closes at the front and has a 5-piece skirt.

8240.—Ladies' blouse. Cut in sizes 36 to 42 inches bust measure. The blouse has Duchess closing in front and the sleeves may be long or short.

8241.—Ladies' skirt. Cut in sizes 22 to 30 inches waist measure. Skirt has a one-piece gathered skirt section which is joined to a straight yoke with tucks.

8236.—Boys' suit. Cut in sizes 6, 8, 10, 12 and 14 years. This suit consists of a plain coat and full knickerbockers.

8269.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in one piece and has a straight lower edge.

8266.—Ladies' dress. Cut in sizes 36 to 42 inches bust measure. Long or short sleeves may be used and the skirt is cut in one piece.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA

The Practical Farmer Live Stock *and* Dairy Section

Trademarks of Breeds

J. HUGH McKENNEY

Of what value are the so-called fancy points, such as color and markings? Judging from the attention received from breeders, they are evidently of importance. From an esthetic standpoint they are, of course, quite legitimate and it is usually in this respect that the average person views them. To one not well versed in live stock these present the most striking difference that distinguishes one from another. A Jersey cow is recognized by its fawn color and dark muzzle. A novice knows a Holstein because of its black and white spots, but if there is a white belt around the middle he calls it a Dutch Belted. Herefords are known by their white faces, while almost any cow of a red, white or roan coloring passes for a Short Horn. Doubtless if the white face of a Hereford were painted red to match its body there would be another addition made to the last named category. Of course, the experienced stockman would rate other characteristics such as conformation, shape of horns and so forth. These fundamental differences are more or less marked in all cases, yet color seems bound to serve as a convenient and conspicuous label for the breeds.

Fixing desirable types is a complex problem in itself. Unless, therefore, a definite gain is made in securing useful qualities the practical breeder is wasting his time in going after color, markings and the like. If they are of no value why should he pay any attention to them? Why not work along those lines that promise the best monetary returns and let the other things come out as they will? A tendency in this direction has been noticeable in recent years among the dairy breeds, emphasis being placed on performance and greater latitude allowed as to exact coloring. But while it would be folly for a breeder to concentrate all his energies in ideal markings, he would still be unwise in going to the other extreme. By preserving a proper balance he stands to be the gainer.

Take the Holsteins as an example. They have been in process of development for—no one seems to know how long—always with the object of milk production in view. Gradually their characteristics became fixed and no class of cattle breed truer to type and color. It is fairly safe to infer, then, that the markings represent certain combinations of character which in the course of evolution have been developed for economic purposes. That is, their presence guarantees to a certain extent the animal's capacity for producing milk. If one is engaged in cow improvement solely for his own personal use as a dairyman, the milk is the thing. He is not likely to ask her to present a certificate of character properly proportioned in black and white. Having an intimate knowledge of her capacity, that is enough for him. In the case of a breeder, however, the situation is different. He is in the market to sell stock. A cow to find favor in his eyes must not only come officially recommended, but, like a consignment of merchandise, show on her own back the trade mark of excellence. With him it might almost be said the trade mark is the thing.

The main excuse for a trade mark is to prevent fraud. In putting out his brand of goods the manufacturer warns the public to beware of spurious imitations and proffers the information that his offerings are genuine. This applies just as appropriately to the sale of live stock, for if an animal drops an offspring that is decidedly off color we are at once suspicious as to the purity of its breeding. Suppose, for example, that Holstein cattle had no regular color and could be registered regardless of this or the kind of markings they possessed. Would it not be comparatively easy for an unscrupulous breeder to sell a cross-bred calf as a pure-bred? Then there is always a danger of accidental or unintentional cross-breeding, and against these the standardized markings act as a fairly effective check. Of course, the trade marks of a breed cannot always be accepted implicitly as a guarantee of purity, for the associations between it and the other deeper qualities may be broken up. For instance, the Hereford tends to transmit its white face to its offspring, to whatever it may be bred, so that the cross-bred offspring may bear the Hereford trade mark. In the next generation it may come into entirely new associations, and here is the advantage of having a trade mark which is complex. A Hereford crossed with a Polled Durham would give offspring with red bodies and white faces, but they would be polled. If crossed with a Polled Angus they would not only be polled, but their body color would be black instead of red, although the white face would still be one of the dominant characters.

Attempts are frequently made to determine the breeding of these cross-breeds as indicated by the most prominent trade marks presented as in the case of winners at our fat stock shows. For example, some may remember Challenger, the prize fat steer at the International several years ago. He was listed as a grade Hereford, his dam being a cross-bred Holstein-Short Horn cow. He, himself, was blue-gray in color, white-faced and polled, and greatly resembled a Hereford-Angus cross. These striking characteristics of several distinct breeds gave rise to some strong claims and considerable discussion by admirers of the breeds in question.

It must be remembered, however, that the breeder's job is no sinecure as it is. If led to give more attention to the trade mark idea he is apt to neglect the still more important problems already in hand, as has frequently been done in the past. To dispense with the former altogether would hardly be advisable for the following reasons: It affords a convenient means of identifying the breeds. It is a means of protection for the purchaser, for, unfortunately, some breeders are dishonest. It is an aid to detecting mistakes or unintentional crossing of breeds. A herd of uniformly and beautifully marked animals has an esthetic value that breeders do not care to disregard. Our method of keeping records and pedigrees is not yet sufficiently accurate and complete to stand alone. While these conditions exist there is still considerable reason for fancy points in utility breeds.

Stockyards Sales Prove Silage Best

The value of corn silage for beef production has again been clearly demonstrated by careful steer feeding experiments at Pennsylvania State College.

Sixty head of cattle which they had been feeding for 140 days during the past winter, were sold April 16th on the Pittsburgh market and the tabulated results will be valuable to those interested in this class of live stock.

Five lots of 12 cattle each were used to study the value of different rations in feeding medium weight cattle under Pennsylvania conditions. The object in shipping the cattle to Pittsburgh was to determine the shrinkage in the various lots from the feed lot to market. The cattle were in transit about 28 hours, and had an opportunity to rest for 36 hours before they were sold and weighed.

Lot 1 received a ration of corn silage, all they would consume, supplemented with 2½ pounds of cotton seed meal per 1000 pounds live weight daily during the first 84 days, and 3½ pounds during the last 56 days.

Lot 2 received corn silage as roughage during the entire period. Cotton seed meal was fed at the rate of 2½ pounds per 1000 pounds live weight daily. During the last 84 days ear corn or shelled corn was allowed in addition to the corn silage and cotton seed meal.

Lot 3 received mixed hay and corn stover as roughage. Ear corn was allowed in approximately the same amount as secured in the silage in Lot 2 during the first 56 days. During the last 84 days it was increased so as to allow approximately the same amount as secured by Lot 2 from silage and the ear corn supplied. Cotton seed meal was allowed at the rate of 2½ pounds per 1000 pounds live weight daily.

Lot 4 received corn silage in such amounts as they would consume in one hour morning and evening. During the day they had access to shredded corn stover. Cotton seed meal was fed at the rate of 2½ pounds per 1000 pounds live weight daily during the first 84 days; during the last 56 days it was increased to 3½ pounds per 1000 pounds live weight daily.

Lot 5 received shock corn, mixed hay and cotton seed meal at the rate of 2½ pounds per 1000 pounds live weight daily.

The feeds were all of good quality, except the shock corn which was fed to Lot 5, which was not of a high grade.

The results obtained in these experiments show a very marked advantage in favor of silage in beef production. The two lots of cattle, Lot 1 and Lot 4, of 12 cattle each, receiving no corn except that secured from silage, made an average daily gain of 2.08 pounds per head dur-

House and Horse Barns at Folly Farms, Pa., One of the Most Extensive Breeders of Registered Percherons in the East. *See Article, Page 188*

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Blatchford's Calf Meal
and Sell the Milk

More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk. Prevents scouring and insures the early maturity of sleek, handsome calves. It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 99 Waukegan, Ill.

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SALE, JACKS Can suit the most exacting, for Jacks, for size, prompt servers and individuals and quality. Bargains. John E. Voge, Jr., R. R. 2, West Alexandria, Ohio.

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High Grade HOLSTEIN CALVES Either sex, beautifully marked, $15 each. A few pure bred heifer and bull calves. Ship anywhere. F. H. WOOD, Cortland, N. Y.

TO SELL quickly, I have three splendid registered Jersey heifer calves for $100—$35 singly. If you are poor and want a good ditto bull calf at low price, write me. W. F. MCSPARRAN, Furnlss, Lancaster Co., Pa.

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Reg. O. I. C. Swine Bred gilts, service boars and spring pigs, choera immune, $15-$25 prepaid express. Write your wants. Jacob Whiteman & Son, College Corner, Ohio.

O. I. C. Pigs in pairs not akin, eligible to registry, good stock. Price, six dollars at six weeks old. ARTHUR FREEMAN, PULASKI, N. Y.

O. I. C.'S 100 pigs ready May 30th at $12.50 single pig, pair no-akin, $24.00. 8-10 weeks old, pedigreed. Highest breeding. Bred gilts all sold. W. I. OWEN, BEDFORD, VIRGINIA.

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Poland Chinas. Big type prolific. Boars, Sows and Gilts bred. Last Fats avg'd 501 lbs. The kind you should raise. CHAS. F. COLEMAN & Co., Trenton, Ohio.

DUROC JERSEYS. Lengthy, heavy boned, eligible to registry. Prices reasonable. Best of breeding. J. H. SMITH, R1, St. Marys, W. Va.

DOGS.

FORDHOOK SCOTCH COLLIE KENNELS—Puppies of choicest imported blood, full pedigreed, at prices the farmer can afford to pay. W. Atlee Burpee & Co., Burpee Buildings, North 5th St., Phila., Pa.

ing the entire period of 140 days. The shrinkage in marketing cattle fed silage as a sole roughage was a little higher than that of lots receiving some dry roughage in addition to silage or fed entirely on dry roughage. Lot 5, receiving the heavy silage ration with a small amount of corn stover, had the lowest shrinkage from the feed lot to market. The profit per steer was highest in the lots fed a heavy silage ration. Cattle fed the heavy silage ration sold for a higher price on the market than cattle receiving corn in addition to a limited silage ration during the latter part of the feeding period, or when fed in addition to mixed hay and corn stover, or where shock corn and mixed hay was fed. The returns from the sale of pork produced in the feed lot is in direct proportion to the amount of corn which is fed to the cattle.

STEER FEEDING EXPERIMENTS, PENNSYLVANIA STATE COLLEGE 1916-17
Twelve Steers in Each Lot—140 Days Feeding Period

	Lot I	Lot II	Lot III	Lot IV	Lot V
Initial Weight per Steer	864	856	858	864	847
Final Weight per Steer	1155	1193	1152	1155	1092
Total Gain per Steer	291	337	294	291	245
Average Daily Gain per Steer	2.08	2.41	2.20	2.08	1.75
Initial Value per Cwt.	$ 7.75	$ 7.75	$ 7.75	$ 7.75	$ 7.75
Initial Cost per Steer	66.96	66.34	66.47	66.96	65.64
Cost of Feed per Steer	25.80	34.51	42.23	24.12	28.45
Cost of Feed per Cwt. Gain	8.87	10.24	14.36	8.28	11.61
Necessary Selling Value in Lots	8.03	8.37	9.43	7.89	7.91
DAILY FEED CONSUMED					
Corn Silage	51.4	39.6		44.46	
Mixed Hay			8.43		5.0
Shredded Corn Stover			2.83	1.82	
Shock Corn					17.26
Ear Corn		13.1 (b)	10.58 (a)		5.75 (c)
Shelled Corn		11.66(d)	14.4 (d)		
Cottonseed Meal	2.8	2.54	2.54	2.8	2.54
Lbs. Shrinkage per Steer in Shipping	51	51	39	38	42
Percentage Shrinkage	4.4	4.27	3.38	3.29	3.84
Cost of Marketing per Steer	$ 4.09	$ 4.09	$ 4.09	$ 4.09	$ 4.09
Total Cost of Steer Including Initial Cost, Feed and Marketing	96.85	104.94	112.79	95.17	98.18
Selling Price per Cwt., Pittsburgh	11.30	11.15	11.15	11.35	10.65
Profit per Steer Not Including Pork Produced	27.95	27.92	11.35	31.56	3.64
Value of Pork Produced per Steer	.37	1.55	1.65	.33	4.98
Total Net Profit per Steer	28.29	23.80	13.00	31.89	8.62

(a) November 25—March 15. (b) January 18—March 15. (c) March 19—April 12 (d) March 15—April 12.

Price of feeds—Silage, $5.00 per ton—Mixed hay, $12.00 per ton—Shredded corn stover, $8.00 per ton—Shocked corn, $12.50 per ton—Ear corn, 95c. per bu.—Shelled corn, $1.00 per bu.—Cottonseed meal, $40.00 per ton—Corn and cob meal, $1.00 per bu. of 70 lbs.—Corn meal, $1.05 per bu. of 56 lbs. Average shrinkage, 47 lbs.

Draft Horses Sell for Good Prices

A horse sale of unusual interest and one which each year becomes better attended as it is more widely known, was recently held at Folly Farms, Abington, Pa. This was their fifth annual sale, and the work which these farms are doing in developing and distributing each year a large number of pure-bred Percherons will have far reaching effects. Thirty-seven registered mares and five young stallions were in the sale, which was attended by 300 interested men and women who came from as far west as Chicago. Twenty-five of the mares sold on an average of $588 each, one of them, Kadole (92456) 77559, a dapple gray foaled May 1, 1910, sold for $1050 with a 2-weeks-old colt at her side.

Mr. Wayne Dinsmore, secretary of the Percheron Society of America, was at the sale, and before the selling began made a short, interesting address to the gathering. He spoke of the wonderful part which horses, and especially draft horses, are taking in the war in Europe. Mr. E. B. White, president of the Percheron Society, and many other noted breeders of these horses were present.

"During the past January," said Mr. Dinsmore, "in spite of the scarcity of ships, more than 30,000 horses and 10,000 mules were shipped abroad. Prices paid for these animals on the farms show that a single cross of draft blood increased their value by $35 to $50 per head, whereas two crosses added from $200 to $250 to the price asked and paid.

"The breeders of small numbers of Percheron horses, who make up 90 per cent. of American breeders, are unanimously of the opinion that they have never had so prompt sales for good stallions rising two or rising three nor received so satisfactory prices as during the past eight months. Importations are practically nil, and the steady increase in demand for good draft horses gives promise of a most excellent future for the shrewd farmer who realizes the advantage of using percheron mares in his farm work. The vast majority of the mares in the United States will be bred or left unbred within the next ninety days. All good mares should be bred to the best available draft stallions."

One of the remarkable developments in Eastern agriculture, according to Mr. Dinsmore, has been the introduction during the past few years of the use of heavier horses for doing the farm work. "We are approaching Iowa conditions," he remarked in passing, "where on a recent drive of 60 miles I saw only one team with less than four horses working in the fields."

Blue Grass Pasture for Hogs

One of the best and earliest pasture grasses for use in pork production is blue grass, as indicated by tests for a number of years at the Missouri College of Agriculture. It can be grown on land not adapted to cultivated crops, and furnishes feed over a long grazing period at a very low cost of production. It produced an average of from $9.66 to $43.36 worth of pork on a basis of 8 cents a pound, with a general average of about $26 worth of pork from each acre of blue grass during the 5-year period 1908-1912. Its averages would doubtless have been much higher if more grain had been fed the first year when less than half as great gains were made as during any later year. With present wartime prices the value of blue grass for pasture is correspondingly increased.

Pork Producing Pointers

To meet the demand from swine raisers for simple, concise and practical feeding suggestions Pennsylvania State College has recently issued a chart which graphically gives this information at a glance. It will be sent free to residents of the state who will write and ask, the School of Agriculture at State College, Pa., for one.

For maintaining brood sows it was found that alfalfa hay alone did not keep them in proper breeding condition. Alfalfa hay and shelled corn; ten parts shelled corn and one part tankage, or corn meal, wheat middlings and ground oats were all found to be satisfactory and economical rations.

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A *Known for 40 Years as Kendall's Spavin Cure*

A New Name But the Same Old Reliable Remedy

FARMERS and horsemen everywhere will be glad to know that this change is in the *name only*—that there is no change whatever in the famous old-time formula that has rendered such remarkable service in horse ailments—Bone Spavin, Ringbone, Splint, Curb, Sprains and Lameness—by the counter-irritant method.

Whether you get Kendall's under the old label or the new, the quality and efficiency is the *same* old reliable—with a 40-year-old reputation.

Get it of your druggist—$1.00 per bottle—six for $5.00—and ask for book "Treatise on the Horse"—or write

DR. B. J. KENDALL CO.
Enosburg Falls, Vt.

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I want it in every farm and city home reached by this paper. It will save you from $200 to $500 on farm and household needs in the next twelve months because

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News from the Breed Associations

SHEEP.

Maine, New York and Pennsylvania furnished the largest number of new members last year to the Dorset Horn Sheep Breeders' Association. More transfers of Dorset sheep were recorded last year than there have been for several years. Twenty new flocks were recorded in the Dorset Horn Flock Book during 1916, and West Virginia led this list with nine new breeders.

Volume XIV of the American Hampshire Sheep Association flock book is now nearing completion and the association is booming as never before. The executive committee recently held an important meeting in Chicago.

The American Oxford Down Sheep Record Association says that the demand for these sheep in 1916 was greater than ever before, and that they are bringing unheard of prices. Grade ewes are said to be selling for $30 to $35 at public sales and all registered Oxfords offered for sale are quickly disposed of at good prices. The association has recently issued Vol. 13 of their record, containing pedigree numbers from 58,001 to 70,500, and almost enough pedigrees are now in the secretary's hands to complete Vol. 14.

Holstein-Friesian Heifer, Jewel Pontiac Segis 229961

She recently produced 475.6 pounds of milk containing 22.07 pounds of butter in seven days, which set a world's record in the junior two-year-old class in the division covering tests begun not less than 240 days after calving

CATTLE.

The annual meeting of the American Guernsey Cattle Club will be held Wednesday, May 16, 1917, in New York City.

The Ayrshire Breeders' Association has on hand about 100 colored slides of Ayrshire cattle suitable for an illustrated lecture, and any member has the use of them for educational work or popular entertainment. There is a big demand for pictures of Ayrshires for school room purposes and the members try by these means to popularize this red and white dairy breed.

When Short Horn cattle are mentioned one naturally thinks of Iowa, Illinois and Nebraska, the three states which lead in numbers of this dual-purpose breed. A report recently issued by the American Short Horn Breeders' Association shows, however, that out of the 20,871 breeders of these cattle in the United States, 225 are credited to Pennsylvania, 140 to Virginia, 105 to New York, 90 to West Virginia, 25 to Maryland and one to Delaware.

SWINE.

The American Hampshire Swine Record Association is offering some $7000 for the 1917 state fairs and National Swine Show premiums. There will be a classification of $2000 at the National Swine Show to be held at Omaha, Neb., Oct. 3rd to 10th. The Hampshire Association is a strong believer in the benefits of making large exhibits at the various shows and fairs to encourage bigger and better exhibitions. It is to this policy that the remarkable growth of the Hampshire breed in the past few years may be attributed, very largely.

The American Mule Foot Hog Record Association reports that this new breed is becoming popular. Sales have been made recently in the Philippine Islands and in Brazil, besides nearly every state in the Union. D. B. Von Beszeditz, of Brazil, has started a branch of the association there and has issued a booklet in Portuguese which claims the Mulefoot as the national hog of Brazil. Wm. Jennings Bryan has started a herd at his farm in Asheville, N. C., because, as he says, "at least in the hoof this hog is most like the Democratic emblem." The new president elected for this year is E. LeRoy Pelletier, prominent in automobile advertising the country over, whose home is in Detroit.

HORSES.

Transfer certificates issued by the Percheron Society of America during the first four months of the present fiscal year exceeded 3000, an increase of more than 16 per cent. over the same period during the preceding year.

That American breeders now possess Hackney ponies superior to those remaining in England is the interesting assertion of William Carr, a British horseman who has been identified with the breed all his life and is widely known as "the Hackney pony king." His statement is borne out by the records of the last National Horse Show in New York, where American bred Hackney ponies swept everything before them in competition with others imported from England, where the breed originated. Only one English bred pony won a blue ribbon in single harness; every other winner was bred in America. The American Hackney Horse Society reports that extraordinary prices are being paid and refused for some of the American ponies of this breed.

GOATS.

The American Milch Goat Record Association, which has nearly 150 members in 30 states, reports that there is a good demand for milch goats this year, while the supply is limited.

How are the heifers faring these days? They are the future milk producers and the way they are developed now counts a long way as to what they will amount to later on. The early spring pasture does not amount to much, so that a lick of meal in the barn when the milkers are taken in will be appreciated by them. It is possible that the ones which are looking so poorly in spite of reasonable care given them, are being tortured by lice. A careful examination will soon tell and if lice are found steps should be taken to free the heifers of them.

"This is for you, girls!

It's the most wonderful separator I ever saw. I just brought it from Johnson's Hardware Store where they were demonstrating it. You can't guess what it will do."

"I think I know, father. You told me last week about the loss of cream in our old separator when I turned it too slow. You timed me and pretty near scolded me when you found I was turning 37 revolutions instead of 50. This is the separator that "skims clean at any speed". It's a

SHARPLES
SUCTION-FEED CREAM SEPARATOR

"Mary is a smart girl, mother—she guessed it. We all helped to test it and it skimmed *to a trace* when turned as slow as 36 and equally clean when turned as fast as 55 turns. It simply skimmed *faster* when we turned it faster. And the cream remained at 35% thruout the varying speeds."

"Why, father—then we will know exactly what the cream check will be each week, wont we?"

"Indeed we will, mother. Now look at the bowl. It's a plain straight *tube* with a small ring like a napkin ring in it.

"Goody!—I'll get thru washing up in a jiffy, no discs!"

"Yes, girls, and note the knee-low supply tank, and the automatic once-a-month oiling—it has any other separator I ever tried, beat a mile. But then—it's made by the oldest and largest Separator Works in America."

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The Practical Farmer, P. O. Box 1321, Philadelphia, Pa.

Other People's Business

By HARRIET LUMMIS SMITH

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CHAPTER XII.

A CONFESSION TOO MANY.

People were talking. That system of wireless telegraphy which ante-dates Marconi's invention by ten thousand generations, had done effective service. In the remotest farm houses it was known that Justin Ware had called on Persis Dale twice within a week. He came between half past eight and nine, so said reliable rumor, and the lateness of the hour of his arrival as well as of his departure, made only too plain the relaxing influence of city life on country-bred standards.

Annabel Sinclair heard and turned faint and sick, so closely does jealousy counterfeit love. As far as Justin Ware was concerned, the news of his untimely death would have affected Annabel less than the information that the chops had not been sent from the butcher's in time for dinner. But he was a man and that he should choose to spend two evenings in a week with another woman, after she had given him to understand that his society would be agreeable to herself, argued a decline in her powers of fascination. She told herself that she hated Persis, that she hated Justin, that she loathed life and the miserable business of being a woman, and she ended by finding pretexts for daily excursions past the Clematis House, always arrayed in the most fetching street costumes. When on the third day she encountered Justin, that gentleman responded gallantly to her pensive tender reproach. His was no Jericho heart, to demand a seven-day siege. He had found Persis Dale unexpectedly interesting, but Annabel was unexpectedly pretty, and a liking for pickles does not preclude a taste for sweets.

Thomas Hardin's married sister, Mrs. Gibson, heard the news with consternation. She had long been aware of the state of her brother's affections, this indeed arguing no especial insight, since an infant in arms would have possessed sufficient intuition to read the heart of the guileless Thomas. Mrs. Gibson had regarded Persis in the proprietary light of a prospective sister-in-law, even going so far as to criticise her with the frank freedom which is the prerogative of kinship. When the first rumor of Justin's attentions reached the good woman's ears, she made a hurried trip to town for the sole purpose of interviewing her brother.

As good luck would have it, business was slack at the moment of her arrival, and Thomas left two lanky country women to the care of his assistant, and followed his sister to a dingy space in the rear which, primarily serving as a store-room, was also by virtue of a certain gloomy privacy, peculiarly adapted to the discussion of a subject of such delicacy.

Mrs. Gibson dusted a chair with needless ostentation and then focused her regard on her brother who stood before her a self-confessed culprit, conscious guilt as manifest in his attitude as in the flaming confusion of his face.

"Thomas, what's this I hear about Persis Dale?"

"I don't know, Nellie. What have you heard?"

Mrs. Gibson's glance expressed her scorn of the evasion.

"Is it true that Justin Ware is going with her?"

"Why, I've heard, Nellie, that he's been over there once or twice. Old friend of Joel's," explained Thomas, with a futile effort to speak convincingly.

"Fiddlesticks! If I thought you really believed that any man would walk from the Clematis House out to the Dale place for the sake of hearing Joel Dale talk about the latest cure-all, I'd be ashamed to own you for my brother. If he goes, he goes to see Persis. Now, what do you mean to do about it?"

"Nellie, I haven't any right to interfere. If she wants Justin Ware's company it's her own business. She's not beholden to me."

"No," snapped Mrs. Gibson. "And why ain't she? Because you've been shilly-shallying along as though 'twas her business to pop the question. You men are getting nowadays so you can't do a thing for yourselves, you just hang back and leave us women to do it all."

Thomas squirmed like an impaled beetle. "Guess I'd better go back into the store, Nellie. George means well, but he hasn't much of a head-piece—"

"Thomas Hardin, you stay where you are till I'm done with you. Now tell me straight. Have you ever asked Persis Dale to marry you?"

"Well, Nellie, to be candid, I never have got really to the point. I want her to know the worst about me first. I wouldn't take her in for all the world, and then have her sorry afterward."

"Take her in! Of course, you'll take her in. If all men stopped for that, weddings would have gone out of fashion long ago. And it's well for women's peace of mind that they don't have to know the worst about the men they marry. I'm ashamed of you, Thomas! To think you've got no more gumption than to stand around like a ninny and let that city man walk off with the woman you've always wanted."

"If she'd rather marry Justin Ware," Thomas began and failed to finish the sentence, his voice strangled by his inward anguish. His sister snorted.

"Good lord! Thomas, a woman's going to marry the man that asks her. By all accounts that Ware won't be mealy-mouthed. If he wants her, he'll not stand back and let another man have the first say."

There was a reasonableness in this presentation of the case which impressed Thomas as his air of irresolution showed.

"Then you think I've got a chance, Nellie?"

His sister groaned her exasperation. "You had all the chance till this Ware turned up. Of course when a woman's got a choice it makes a difference. But there's nothing gained by holding off and letting him have everything his own way. If you don't ask her, of course she'll take him, provided she gets the chance. And if you do ask her, she may take you. So you won't lose anything by trying."

As a result of this plain unflattering counsel, Thomas Hardin dressed that evening with unusual care, and with the approach of darkness turned his face toward his familiar goal, his emotions befitting a participant in the charge of the Light Brigade. His throat was parched, his heart hammered. While absolutely certain that Persis was aware of his aspiration, the thought of expressing it, of making a formal offer, was distinctly terrifying. And moreover there was a disagreeable preliminary that must receive attention, the confession of another of those misdemeanors of his past, as irrepressible a brood as hounded poor Macbeth. The episode dated back to his twentieth year, when Annabel Sinclair was just waking up to the knowledge of her beauty and the power it gave her over the susceptible sex. Thomas blushed to recall how ignominiously he himself had capitulated.

Fate was on his side that evening. Joel was absent. Persis was kind. She sat by the lamp stitching, and the inevitable suggestion of comfortable domesticity was in itself an inspiration. He thanked Heaven for her lowered gaze, confident that if he were forced to meet her candid eyes, he should never find courage to begin.

"Persis, there's something I want to tell you. It ain't pleasant to speak about it, but I think it's one of the things that ought to be said before—I mean I'd be a good deal easier in mind if you knew all about it."

"I don't believe it's anything so very bad, Thomas," Persis said with unaccustomed gentleness.

"Well, I don't know. She was so pretty and cute that it sort of went to my head, but that's no excuse."

"Who was pretty?"

Persis let her work fall. Her eyes met her lover's with a challenge that did not tend to lessen Thomas's confusion.

"Well, Persis, you've a right to know. Of course I wouldn't mention it to anybody else. Not that she was a mite to blame," interpolated Thomas with instinctive chivalry, "for it was all my fault from start to finish. It—it was Stanley Sinclair's wife."

Absorbed as he was in relieving his conscience of its intolerable load, it did not occur to Thomas to emphasize the fact that on the occasion when he had played so culpable a part, Annabel still bore her maiden name. It was a good two years before the dignified Stanley Sinclair had recognized in the giddy, shallow, little beauty, the fitting mate for his staid maturity. And that his failure to make this point clear might lead to a serious misapprehension on Persis' part, failed to present itself as a possibility to the honest blunderer.

"Well?" Persis' tone was crisply interrogative. "What happened?"

"Why, she looked so like a kitten, Persis, that you can't hardly help petting, that I put my arm around her. And I—" He cleared his throat, his eyes, fortunately for his resolution, fixed upon the floor. "Well, I might as well make a clean breast of it. I did kiss her. Of course I ought to be ashamed—"

"Yes." Persis agreed icily. "You ought."

She had listened with a sort of sickened revolt to Thomas' stammered confession. Nothing that Annabel Sinclair could do would surprise her, nor did she wonder when boys of Thad West's age yielded to her lure. But that this man, this staid, stanch Thomas, on whom she had counted more implicitly than she knew, should have proved so easy a victim shook her native faith in humankind. "All men are alike," thought Persis, in her haste betrayed into one of those sweepingly unjust generalizations such as King David penitently acknowledged.

Thomas' eyes came up from the carpet at her tone. He looked at her with a sort of terror. The fixed sternness of her face made her seem a stranger. Little as he relished the idea of acknowledging his bygone weakness, he had not dreamed of a result like this.

For a moment he gazed at her with dumb appeal, then faltered: "I was—was afraid you'd be disgusted with me, Persis."

"I am."

He swallowed hard as if her answer were a mouthful that resisted mastication. For a little they sat silent. Persis picked up her work and resumed her sewing with a brave show of indifference though the seam ran into a blur before her eyes. At last Thomas spoke.

"I'm sorry you take it this way, Persis, but it couldn't be helped. I had to clear up things before—I didn't feel it would be fair to ask you anything that would bind you till you knew the worst about me. And now—"

There was another long silence. Then Thomas found himself upon his feet, feeling for his hat, groping like a blind man.

"Good-by, Persis. I wish I'd been a better man. But the fact is I ain't fit to tie your shoe strings, and that ends it. Good-by."

He held out his hand, a formality unprecedented. She realized that he meant it for good-by, not good night. Some perversity kept her eyes upon her work, her hands occupied.

"Good-by, Thomas."

The door creaked ajar. There was a pause. It closed reluctantly. She heard him stumble at the steps, go haltingly down the path. She stabbed the fabric in her hand with her needle as if that minute tool had been a weapon.

"Men are all alike," repeated Persis, the tears running down her cheeks. "But there's a difference in women. And the Annabel Sinclair kind, with brains enough to keep 'em from being downright bad and not enough conscience to make 'em good, are the worst of the lot. If the devil couldn't count on their help in laying traps for good men, he'd be dreadful handicapped."

She swept the tears from her cheeks with a swift gesture, swallowed those which had not yet fallen and fell to sewing frantically, for there were steps outside. But the late caller was not Justin Ware as for the moment she had feared, but Mrs. West entering with the ponderous dignity inseparable from two hundred pounds avoirdupois. Persis rose hastily and pulled forward the big armchair, her action due to well-grounded fear for her furniture in addition to the impulse of her native courtesy.

"Set down, Mis' West. You're looking first-rate."

"If I am it's more than I feel," the stout woman returned in a hollow voice. "I'm so worried about Thad that I wonder there's anything left of me."

Persis, politely forbearing to call attention to the fact that enough of Mrs. West remained for all practical purposes, regarded her friend with kindly concern. "My, is Annabel Sinclair pestering that boy yet? I thought—"

"Persis, it's not Annabel now. It's the young one—Diantha."

"Oh!" Persis resumed her sewing, with heightened color.

"Yes. I used to think he was as crazy about that woman as anybody could well be, but that wasn't to be named in the same day with the state he's in now. He goes around as if he was in a sort of daze. Sometimes I have to ask him three times over if he'll have another helping of pie."

"Well, it may not be sensible, Mis' West, but it's nature. I guess there's nothing to do except put up with it."

"But, Persis, she's so young."

"She's younger than her mother, that's sure. And that's in her favor."

"And she's Annabel Sinclair's daughter."

"Well, that's better'n if she was somebody's wife."

"It's easy for you to make light of it, Persis. But if he was your boy—" Mrs. West produced a voluminous handkerchief from about her person, hid her face in its folds and sobbed.

"If he was my boy, Mis' West, I guess I'd act as foolish as other mothers. But seeing he ain't, I can look at the affair kind of detached and sensible. I don't suppose you're especially set up over the idea of Diantha Sinclair for a daughter-in-law, but if mothers picked out wives for their sons, there'd be mighty few girls who'd pass muster, and the balance would have to settle down to be old maids."

"It isn't that I don't think anybody's good enough for Thad," said Mrs. West in hasty disclaimer. "I can see his faults fast enough."

"Yes, you can see his faults, and you can excuse them, too. That's what being a mother means. And you can see Diantha's faults, and you can't excuse 'em without a struggle. Yet she's as pretty as a pink, and a sweet-dispositioned girl, too. She's a long ways yet from being a woman, but as far as I can see, she's started in the right direction."

"I'd hate to think of my Thad leading the life Stanley Sinclair's had to for the last fifteen years," said Mrs. West with feeling.

"Well the cases ain't the same. When youth mates with youth, there's hopes of them learning their lessons together and not making such hard work of it, either. But what can you expect when a man along in the forties decides it's time for him to settle down, and ties himself up to some giddy young thing, so brimful of life that it's all she can do to keep her toes on the ground. It's like hitching up a colt with some slow-going old plug from a livery stable. You drive 'em that way, and either the colt's spirit is going to get broken, or else the plug will travel at a good deal faster clip than he likes."

Mrs. West's attention had plainly wandered during Persis' homily.

"Beats all how that girl grew up all in a minute, so to speak," she said irrelevantly.

Persis gave her entire attention to her work.

"It don't seem any time since I was here and she came in to ask about some sewing of her mother's. Her dress was up to her knees, and her hair hanging in curls. Except for being tall she looked about ten years old. And the next thing anybody knows, she's a young lady with all the airs and graces."

Persis preserved a guilty silence.

"I didn't know but you might have some idea," Mrs. West suggested hopefully. "You know you agreed to see what you could do about Annabel, and then Thad got tired of her all at once, so there wasn't any call for you to interfere."

With a determined shake of her head, Persis declined the new commission.

"No, Mis' West. I'm not going to have a finger in this pie, and I advise you to let the young folks alone. If you don't want him to marry her, your one chance is to leave 'em be. And if they do make a match of it, either one might have done worse."

While Persis gave no hint to her caller of her own complicity in the situation Mrs. West deplored, at the bar of her own conscience she made no effort to disclaim the responsibility. It helped to ease the hurt due to the revelation of Thomas's weakness to busy her thoughts with other people.

"If they do take each other it's got to be for better instead of worse. I made that match without meaning to, but as long as I had a hand in it, I'm going to see that both of 'em behave."

(Continued next issue.)

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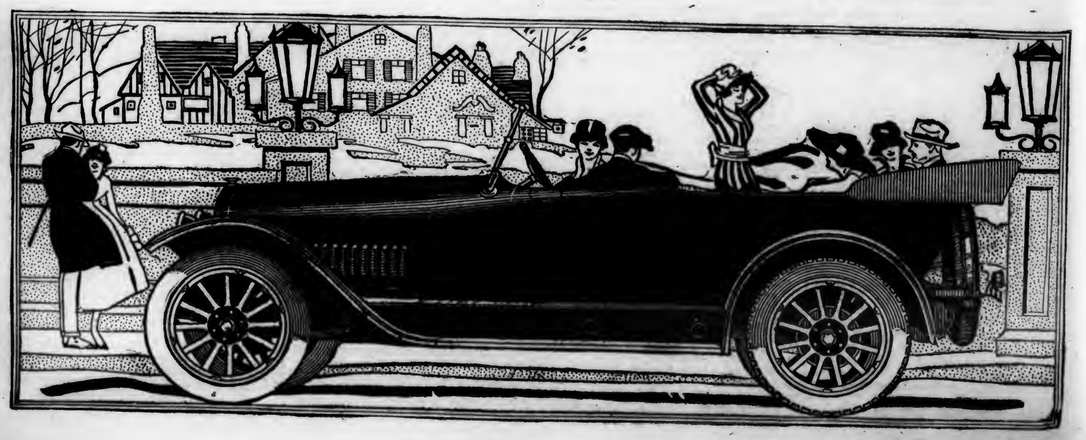

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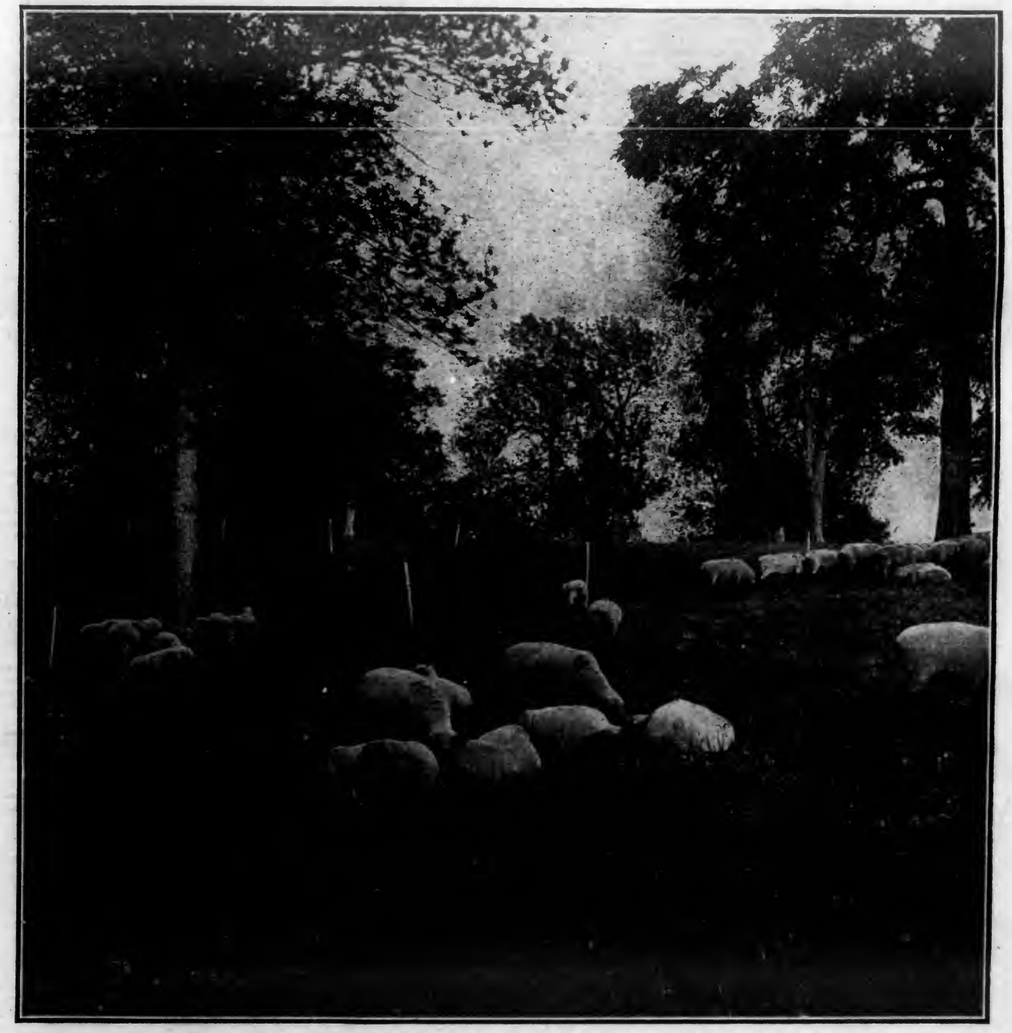

"Sheep—and Still More Sheep" is One Way of Answering the Country's Call for More Food—and Clothing

Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

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CHAPTER XIII.

THE MAIL BAG.

"I should 'most think you'd have to give up the dressmaking business or else hire a secretary. It takes considerable time to attend to such a correspondence as you're getting to have."

Joel slammed a bunch of letters down upon the table, his ill-temper expressing itself as naively as that of a child. Nor was its occasion a mystery to his sister. Numerous letters marked the recipient as an individual of consequence. Joel's mail was limited to communications from the distributors of quack remedies to whom he had communicated his symptoms in accordance with instructions set forth in their benevolently inquisitive advertisements. When Persis received several letters in the same mail, the possibility that he might be a person of secondary importance in the establishment presented itself to Joel with disquieting force.

"Like enough they're from some of my customers asking when I can spare 'em a little extra time," Persis suggested soothingly.

"No, they ain't. Least ways some of 'em are from men. And I must say, Persis, it don't look well, your carrying on a correspondence with two or three menfolks and your own brother not know anything about it. As the poet says:

"'A lost good name is ne'er retrieved.'

"Who's this that's writing you from the Clematis House, anyway?"

"I haven't looked to see," Persis replied dryly, but her comely face took on color.

"Looks bad when a man right in the same town's ashamed to say what he's got to say to your face. Has to seal it up in an envelope. If you were a little readier to ask advice, Persis, it would be better for you. You women, sheltered and guarded all your lives, ain't expected to know much about the world, and if you just won't seek counsel from them that's able to give it, of course some unscrupulous rapscallion is going to make fools of you."

"Well, Joel," Persis promised with unimpaired good humor, "if I ever get in a tight place where I need your advice, I'll ask for it." But she made no move to investigate the contents of the promising pile upon the table, and without attempting to mask his umbrage, Joel withdrew his offended dignity to the porch. Even then, in splendid refutation of the theory that curiosity is the cardinal vice of her sex, Persis completed the task on which she was engaged before putting herself in a position to answer Joel's inquiry as to the identity of the correspondent using the stationery of the Clematis House.

It was her first letter from that source for many a year and she scrutinized the address long and thoughtfully. "I shouldn't even have known his handwriting. If anybody'd told me that six months ago, I'd have laughed in his face." But now instead of laughing she sighed, and her face remained grave throughout the reading of the communication.

"Dear Persis—I am unexpectedly called out of town and shall not be able to see you Thursday as I had expected. I do not think, however, that I shall be away more than six weeks or two months at the longest. There are some good business prospects here, which I have not as yet brought to a satisfactory termination, but apart from that, the temptation to see more of my old friends is too strong to be resisted.

"Sincerely yours,

"J. M. W."

"I guess he means the Hornblowers, by 'business prospects,'" mused Persis, and replaced the letter in its envelope. For Mrs. Robert Hornblower's anticipations of a life of luxurious ease had been temporarily thwarted by the unexpected and unprecedented opposition of her hitherto compliant husband. Even a worm will turn. Robert Hornblower, after a lifetime of meek submission, had suddenly become contumacious and unruly. The widely authority, exercised so long under another name, had as yet been powerless to bring him to the point of disposing of his farm. The man had aged under the strain, had lost flesh and color, along with sleep and appetite, and yet to the surprise of his acquaintances and his own secret amazement, he had proved that he had a will of his own by stubbornly reiterating his refusal to be coerced into acting against his best judgment. And while Mrs. Hornblower was confident of ultimate victory, it was not easy for her to forgive her husband for delaying in so unjustifiable a fashion their entrance into the Promised Land.

The second letter to receive Persis' attention was addressed in a hand which, like Justin's, seemed hauntingly familiar. Persis studied the post-mark with the result of piquing her curiosity, rather than satisfying it.

"Warren, New York. First time I ever heard of that place to my knowledge. Beats all how folks can know your name, when you hadn't even found out that their town was on the map." With a mounting and pleasurable sense of her own importance, Persis opened the letter and looked first at the signature of the writer. Then with an exclamation of interest, she gave herself to the perusal of the communication, forgetting Justin Ware for the moment as completely as if he had never existed.

"My Dear Miss Dale—A friend of mine, Mr. Washington Thompson, has asked me to write requesting you to forward him at once a letter of mine which has come into your possession, though I am at a loss to understand how. I have told Mr. Thompson that after all this time the letter is perfectly worthless, but he does not seem to be of that opinion. Accordingly I am troubling you by this request. Mr. Thompson will be at the Monroe Hotel, Cincinnati, from the twelfth to the fifteenth, and for the week following at the Hollenden Hotel, Cleveland.

"Yours truly,

"Enid Randolph.

"Warren, New York."

Persis sprang to her feet and ran out upon the porch. The irate Joel, nursing his wrongs in dignified silence, experienced a new sense of injury at the sight of her radiant face.

"Joel, when you happen to pass young Mis' Thompson's I want you to stop and tell her that I've got a piece of goods here that maybe belongs to her. Ask her if she'll come in the first time she's by. You might say, Joel, that I'd be much obliged if she'd make a point of coming soon, as I have a general cleaning up along about this season, and I like to get rid of all the odds and ends that are cluttering up things."

Nothing in Joel's expression indicated that he had even heard the commission, but his look of gloomy abstraction did not deceive his sister who was perfectly aware that he understood her request and would take a certain satisfaction in executing it. She returned to her mail, making short work of an advertisement of a new substitute for silk linings and another which offered a fashion periodical at bargain prices. The last letter in the pile again aroused her curiosity, for the upper left-hand corner bore the legend, "Delaney and Briggs, Attorneys-at-Law."

"Lawyers, too. Well, I don't blame Joel for feeling exercised." She recalled the implied threat in a recent communication from Mr. Washington Thompson regarding the return of his property, and the thought crossed her mind that possibly he had invoked legal aid for its recovery.

She was standing as she began to read. Half-way down the page she uttered an exclamation and staggered to a chair. She finished the letter, laid it down, took it up again and reread it. Then rising, she busied herself with various tasks about the room, doing over several things she had already completed and ignoring some obvious needs. This accomplished, she read the letter for a third time and brought out her sewing. After five minutes of desultory work, she folded the garment and laid it away. For the next two hours she might have served as a study of contemplation. Her chin upon her hands, her eyes musing, she sat motionless, almost rigid, as the big clock ticked off the seconds.

Joel shuffled into the room on the stroke of twelve. "Mis' Thompson says she'll likely go by some time today or tomorrow and she'll stop in."

Persis did not reply, and for the first time Joel noticed his sister's unusual attitude. He looked at her and then at the clock.

"Ain't dinner ready?"

"Dinner?"

"Yes, dinner! What ails you? You act as if you'd never heard of such a thing as meal-time."

"I didn't think it was time for dinner yet," Persis answered, rousing herself. Again Joel inspected her sharply.

"Haven't you been sewing this morning?"

"No; I did start, but I didn't feel like keeping it up."

Joel's face expressed mingled concern and amazement. That Persis should sit idle a morning from choice was extraordinary enough to be alarming. "Don't you feel well?"

"Me? Oh, yes, I'm all right." Persis went into the next room and began her preparations for the meal. It took her longer than usual. Joel watched the clock with frowning vexation, but some quality abnormal and vaguely disquieting in his sister's manner kept him from putting into words the impression that a man who is kept waiting a full hour for his dinner is hardly used.

His mood softened when at length appetizing odors, diffusing themselves through the house, indicated that the pot roast of day before yesterday which under Persis' thrifty management has as many final appearances as a *prima donna*, was soon to grace the table as an Irish stew. Joel dearly loved that savory concoction, and though he was on his guard against allowing her to suspect the fact, he privately placed his sister's dumplings on a par with Addison's poems. Forgetting both his grievance of the morning and his later anxiety, due to Persis' singular conduct, he gave himself up to cheerful anticipation.

The problem which for generations has exercised the wits of amateur debaters was settled satisfactorily in this instance, at least. The joys of anticipation far exceeded the pleasure of realization. Joel took one swallow of the stew and dropped his spoon with a splash.

"What in Sam Hill! What kind of a mess do you call this?"

Persis took a hasty sip, looked incredulous and sipped again. Slowly the shamed blood crept to the roots of her hair. Yet she spoke with a self-control fairly brazen.

"Looks as if I'd made a mistake and put in sugar instead of salt."

Joel's gaze swept the table, hawk-like in its searching eagerness.

"Where's the dumplings?"

"I—well, I declare, I forgot the dumplings."

He experienced a chill of actual terror. This was his sister Persis, Persis the practical and reliable, this woman who sugared the stew, and allowed the *chef-d'oeuvre* of the dinner to slip her mind. He was immediately aware of a singular flush staining her cheeks, a feverish glitter in her eye.

The gentleness of his comment took her by surprise. "I guess, Persis, it was only that you was thinking of something else."

"That was it, Joel." She hesitated, then moved by his forbearance spoke out plainly. "I was thinking, Joel, how it would seem to be rich."

Again his heart jumped. Such vague vain wishing, so characteristic of many women, was absolutely foreign to his sister's temperament. He could not remember the time when she had overlooked the present satisfaction, however poor and meager, in favor of some joy of fancy.

"I wouldn't let my mind stray off to such things," he said uneasily.

"Well, Joel, I guess I'll have to face it. The fact is, you see, I *am* rich."

Her words fell like a thunderbolt, confirming his worst fears. He sat aghast, unable to decide whether Persis had lost her mind, or this was the delirium incident to some acute seizure. In tones of such unnatural gentleness that his sister started as they fell on her ears, he offered the only suggestion which occurred to him at the moment.

"Hadn't you better go lie down, Persis?"

"Me? Why, I feel all right."

"Well, even if you do, lying down won't hurt you. It's the best thing known to lengthen life. You'd ought to take better care of yourself, Persis. Half an hour a day—"

His sister interrupted him with a burst of laughter in which his preternaturally acute senses detected the wildness of mania.

"Joel, I know what ails you. You think I'm taking leave of my senses. It does sound that way, I own, for a Dale to be talking about being rich. I don't mean the Vanderbilt kind of riches, you know, but a nice little income so I can keep a servant girl and never do any more sowing and maybe buy an automobile."

"Persis Dale," exclaimed Joel, "you're as crazy as a June bug."

"Look for yourself, then." Persis turned to the secretary where she had placed the letter she had received that morning. She felt more like herself than at any time since she had perused the contents of that final astonishing communication. In combatting Joel's incredulity she was able to set at rest certain disquieting doubts of her own as to her sanity.

Joel's jaw dropped as he read. "Mrs. Persis Ann Crawford. Why, that must mean Aunt Persis."

"Sure. The one I was named for. And I guess it's a good twenty-five years since we've had a line from her." She laughed a little hysterically, dabbing her eyes with her handkerchief. "I don't s'pose I'm crying because she's dead, seeing I took it for granted that she'd passed away years ago. And yet all the time to leave me her money. Ain't life the funniest mix-up. Yesterday I couldn't have afforded so much as a sick headache. And now if I want a run of typhoid fever or my appendix cut out, it's nobody's business."

Joel laid down the letter with a gulp. The impression uppermost in his mind was the singular blindness of fortune in selecting the recipients of its bounty.

"It's a good deal of a responsibility for a woman," he said ruefully. "Seeing I'm the oldest, it's rather odd Aunt Persis Ann didn't realize that I was the proper one to inherit. But I guess she thought it was all in the family, and you'd be guided by my advice."

Persis' answer was irrelevant. "Joel, seems to me that so far my life's been for all the world like a checked gingham, if you know what I mean."

But Joel did not know. "Checked gingham! I never heard such crazy talk."

"Made up of the same little things, all just alike," Persis explained patiently. "And nothing especially bright or cheerful about any of 'em. I've a feeling as if I'd like a splash of color now, velvet as green as grass and fire-red satin."

"Sounds as if you had the Scarlet Woman in mind," Joel said disapprovingly, and before Persis had time to explain, young Mrs. Thompson had knocked. She was a sorry figure for a wife of less than a year's standing, a drooping little woman, pale, listless and heavy-eyed.

"Mr. Dale said something about your having a piece of my goods," she explained with such an effect of indifference that Persis wondered she had taken the trouble to call. Then her gaze went to the table and the untouched meal. "I'm afraid I've interrupted you."

"Not a mite, Mis' Thompson. Walk right in! Joel!" Persis' authoritative glance in her brother's direction indicated the propriety of his withdrawal. Joel rose reluctantly. It was not a fitting that was in prospect nor even a discussion of styles where questions might arise which could not suitably be debated before one of the opposite sex. But since Persis only wished to return the young woman a piece of goods that had been overlooked when her dress was sent home, Joel felt not unreasonably that he might have witnessed the transaction without offending the most rigid notions of what was seemly.

Persis searched in her piece bag and produced an infinitesimal scrap of green voile. Young Mrs. Thompson accepted the offering with evident surprise.

"Yes, that's my goods," she acknowledged. "But it's so little, I don't see how I can use it."

"You never can tell when a scrap like that will come in useful," Persis declared convincingly. "And by the way, Mis' Thompson, I wonder if your husband happens to have handy that ridjculous letter that was meant for another Thompson."

The worthless scrap of green dropped from the young wife's shaking hands. "Why, what makes you think—"

"That letter," Persis explained steadi-

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The Truth About the Sheep and Wool Situation

By A. C. BIGELOW

President The Philadelphia Wool and Textile Association

THE sheep industry in the United States is in a period of transition from the West to the East. A few years ago conditions were just the reverse, but now the vast Western grazing areas are being reduced because of the demand for more farm land and the sheep industry must be brought back home. If large numbers of the best of these Western sheep are not transferred to other farms it will only be a few years before the industry under the present Western grazing system will be a negligible quantity. This condition is being brought about through the workings of the "Grazing Homestead Act," passed at the last session of Congress, which is giving to those who desire them, 640 acres of land in the West as a dry farming homestead. That this act is being taken advantage of is shown by the fact that at one office of registration in Wyoming there have already been filed claims for over 640,000 acres. Present sheep owners in this territory are not slow in seeing that this will mean a tremendous decrease in the grazing area for their flocks and they are taking immediate steps to either reduce their flocks to a size which they can handle under the new conditions or else they are arranging to get out of the business entirely. The homesteaders who will occupy these holdings in most cases are not sheep men and even if they had enough money to go into the sheep business, the small area of 640 acres of such land is not large enough to warrant sufficient returns for the risk and money which they would have to invest.

Desiring to know at first hand just how these conditions were being met and what they meant to the sheep owner, three months ago our Association sent a special agent into the West and had him travel through the states of Montana, Wyoming, Idaho and Oregon and report to us conditions just as he found them. He was a man who knows conditions thoroughly as they exist in this range country. He went to the ranches and ranges and secured the information at first hand and reported, among other things, that within the next year there will be a decrease of 25 per cent. in the sheep population in this section and that within the next few years there will be a still greater decline of the industry. Our representative reported, while on his trip, that the sheepmen were in a position to lose heavily if they met with severe spring storms, as they were not in position to properly care for their flocks. Recent Government reports from this section showing heavy losses due to these causes have shown the truth of these statements and have only tended to make the sheep situation more acute.

There is a possibility that at the end of ten years this large grazing area under the operation of the Grazing Homestead Act will be more productive than it is now, but can we wait for those ten years to pass? Food and clothing conditions in the meantime would assume a more serious aspect than they do at present. Our Association during the past year has been working on this problem in a broad way, but cannot expect to solve it even within another year. Our only hope is to be able to keep this great reservoir of Western sheep on the ranges long enough to draw the great bulk of the best of them to Eastern farms and establish the business on a new basis. If we are unable to do this and the provisions of the Homestead Act are carried out, the next few years will see a great rush of these sheep to market, which will provide a supply of mutton temporarily only, but when the rush is over where are we to look for future supplies? This would be killing the goose that lays the golden egg.

Having made sure that these were the conditions as they now exist, I recently took this matter up with the General Land Office, U. S. Department of the Interior at Washington, presenting these facts to them and asking them if it would not be possible to suspend for at least a few years the workings of this act until we could save a lot of these sheep from premature slaughter. They informed me that the matter was now entirely without their jurisdiction and suggested that I take the matter up with the National Committee of Defense and try to obtain through them a legislative enactment or an executive order which would check this unnecessary waste of our national food and clothing supply.

A Photograph from the West; It is Flocks Like This Which Must be Transplanted to the East if We are to Take Care of Our Country's Needs in Wool and Mutton

In order to suit our action to our ideas we have recently purchased in Oregon 10,000 yearling ewes and have made arrangements for shipping them East. These sheep are to be sold at cost to any one who wants them to put on an Eastern farm and already we have signed applications for more than half of them. They will be shipped about the first of June by a special train composed of cars holding 300 sheep each, the greater part of them going into New York State. They are good, lusty stock and said to be one of the best bunches of sheep that our representative saw in the West, for general conformation and constitutional qualities. They are a cross of Lincoln with Rambouillet—the wool grading on the market terms about a straight quarter. At the time of delivery they will each weigh about eighty pounds, after clipping a fleece of approximately eleven pounds per sheep. These sheep will cost us on the range $11.50, and the expense of getting them East will be from $1.50 to $2 per head, making the total cost about $13 or $13.50. We will be glad to ship a carload of them to any point in New York or Pennsylvania to an individual or group of individuals who will properly care for them. One bank in Somerset county, Pennsylvania, has agreed to take from 500 to 1000 sheep for its section and will dispose of them to its clients either for cash or by special arrangement. We have one individual in New York State who wants 500 of them, but at the same time we would like to see a number of them disposed of in small lots in order to interest more people in this profitable business. Any organization or group of farmers which can handle a carload (300 sheep) will do well to take this matter up with me immediately at Philadelphia. We are not figuring on any profit in this distribution, have the best sheep obtainable and are interested in having them widely distributed.

It is also our intention to bring East possibly 100,000 sheep during July or later, of not quite such high grade stock. Possibly 40 per cent. of this lot will turn out to be broken down ewes which can be fattened on grass for winter sale, leaving 60 per cent. of them for breeding stock to re-establish the sheep interest in the East.

The universal dog question always presents itself, but we think now that this difficulty is being rapidly overcome. I understand that West Virginia has recently passed very favorable legislation along this line, and hope that the Pennsylvania Legislature will meet these conditions in a patriotic way. House Bill No. 1345 recently introduced by Mr. Lohr at Harrisburg, was referred to the Committee on Agriculture and was only a few days ago reported on favorably by that committee after several hearings of the parties interested. Features were incorporated into this bill which met favor with the sportsman and it is hoped that when it is again reported in the House it will be acted upon favorably. In spite of all the ravages by our dogs it has always occurred to me that the profitableness of the sheep industry has been clearly demonstrated by the fact that the sheep owners have continued in the business. Within recent years also the introduction of better grades of sheep has had a tendency to make the business still more profitable and as time goes on things will continually improve. The wool manufacturers under the stimulus of free wool have recently learned to their great advantage the lesson of efficiency and do not hesitate in consigning to the junk heap all machines and methods which do not give them the best possible results. In the same way the farmers are recognizing the fact that there is a difference in sheep and that by keeping the best breed suited for the purpose they have in view, either wool or mutton, their business will be still more profitable.

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.

EDWARD T. WALKER, Managing Editor

THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS

W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE

F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES

J. C. Billingslea, 119-123 W. Madison St., Chicago.
768 Kresge Bldg., Detroit, Mich.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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MAY 15, 1917

Financing the War

A PREACHER down in Georgia was jailed recently for saying in a sermon that "this is a rich man's war and a poor man's fight." Perhaps this was on the principle which obtained in old English jurisprudence in libel suits, that "the greater the truth the greater the libel!"

However that may be, there is no doubt of the fact that the common people, i. e., the men of small incomes, will have to do the most of the fighting, from the simple fact that they form the great bulk of the male population of the United States.

This should be borne in mind now that Congress is engaged on measures for financing the war. It is probable that the fighting forces of the country will be, largely, drawn from those whose incomes average $1000 per year or less. Not because they are more patriotic than the possessors of larger incomes, but because they are in the large majority, and hence the fighting burden will rest very heavily on them. They will put into the war the most precious thing that the average man possesses—his life, and they will do so knowing if any are dependent on them, such dependents will fare ill in the life struggle if death claims his toll of the bread winner.

Hence the burden of the heavy taxation necessary should rest as lightly on the low-paid class as human ingenuity can devise, and the main money burden fall upon those whose means are large and whose prospect of engaging in the actual fighting—except through volunteering—is much less than the common wage earner.

We hear much of the wealth of the United States and its enormous increase in recent years. The tongue rolls off the billions with unctuous rapidity, until they mount up to about two hundred and thirty. But investigation shows that this stupendous aggregate is very unevenly distributed. Prof. King, of the University of Wisconsin, reports that 2 per cent. of the population of the United States owns absolutely 65 per cent. of its total wealth, i. e., 2,000,000 people out of 100,000,000, own over one hundred and forty-nine billions out of two hundred and thirty billions of dollars. While wages among some classes of labor have increased, they have not kept pace with the increased cost of all necessaries which enter into a bare living. This is true of our highly unionized labor; while in a large class, including clerks, working girls, school teachers, etc., the increase has fallen far short of the increased demands on their purses. This is also true of the small shop keeper and business man, whose profits are more apt to show a decrease than an increase.

Last year there were 232,828 persons whose yearly incomes ranged from $3000 to $100,000; and 3824 whose incomes exceeded $100,000 each. The American Committee on War Finance proposes a schedule of tax on income graduated according to the size of the income, and on all incomes exceeding $100,000 the tax to take all in excess of that sum, which would yield, on the basis of last year's incomes, $1,167,923,075.

Turning to the profits of corporations we see some startling figures. A study of 41 of the leading corporations show the yearly profits have increased from $124,242,776 in 1914, to $729,983,235 in 1916. Here are two concrete facts: The U. S. Steel Corporation's net earnings increased from $23,496,768 in 1914, to $271,531,730 in 1916. The Bethlehem Steel Corporation's net earnings increased from $5,590,020 in 1914, to $43,593,698 in 1916. These unprecedented earnings are properly the subject of taxation, and heavy taxation at that.

Conscription of human life has been ordered, and is necessary if the war is to be carried to a victorious conclusion. The conscription of wealth should be the necessary corollary. A tax on incomes which would leave the inordinately wealthy an income of $100,000 undoubtedly would seem to them conscription with a vengeance. But after all, if the wealthy man measures his sacrifice by that of the man in the trenches, who has offered his all to his country, and the magnitude of the issues involved in the war, is his sacrifice too large? If he has the true American spirit and an appreciation of what the men are doing and risking on the firing line, he will rise to the emergency which confronts him. The taxes on excess profits of corporations should be measured by the same standard. The opportunity to make these profits has been made possible by the Government, and as a mere matter of dollars and cents, their continuance depends on the continuity of the Government itself.

By all means the burden must rest on us all. We should all be willing to contribute our just share of what we have and what we earn to the needs of the Government. But the burden should be distributed equitably. Tax profits, not losses—tax income, not outgo!

Enthusiasm

IT seems that nearly everybody everywhere is talking more food production. All kinds of plans are being suggested, some wise, some foolish. The facts are, steps have been and are being taken by the producers to raise more of everything, not only because it is good patriotism but because it is good business. Labor has been the one big limiting factor, but it is being rapidly overcome. We are also finding that our per man capacity has not been fully reached, but that by making a little further effort still greater results can be obtained. A recent census taken in New York State shows that there are only 84 per cent. as many hired men as there were last year and at present there are only two hired men for each five farms. At the same time the figures show that the farmers propose to put in 56 per cent. more corn and 40 per cent. more bean acreage than last year. The potato acreage will be increased 25 per cent., commercial vegetable growing 35 per cent. and cabbage acreage 80 per cent.

This report sounds good in view of the fact that we no longer have merely a few over one hundred million people to feed, but considerably more than twice that number. Should the great war suddenly cease we might also be called upon to feed some of those who are now our enemies. We, however, can provide square meals for everybody if we just realize conditions and buckle down to the task.

Mr. Gifford Pinchot recently stated:

"The two great weapons in this war are arms and starvation. The war against German arms will be won or lost in France—the war against starvation will be won or lost in America. The Kaiser cannot whip the French and English armies and the English navy while England has food. But it is still possible that the German submarines may be able to keep food enough from reaching England to starve her into submission.

"If the submarines win, the first item in the Kaiser's terms of peace will be the English fleet. With the English fleet in his possession, the Kaiser will be master of the world. * * * * * * * *

"If the war lasts beyond this summer, it will be the American farmer who will win or lose the war, who will overcome militarism and autocracy, or allow them to spread and control the world, ourselves included.

"This is no fanciful picture, but sober fact. Many a man will make light of it until he comes to think it over, but I venture to say that few will treat it lightly after careful thought. It is no more impossible than the great war itself appeared to be, only a few days before it began."

This, then, is the problem which confronts us. We do not face battle scarred and devastated fields, however. Our farms have never yet had their food resources fully developed, so nothing but enthusiasm can fill our thoughts as we start the herculean task before us this year. We can do it and we are going to do it. Our allies are too busy fighting to provide for themselves, so we can rejoice that our greatest job at present is to feed them and ourselves.

HOW ABOUT LABOR? Do you need it—can you use inexperienced city labor to advantage on your farm? If so we will be glad to help you if we can. We cannot promise anything, but we are in touch with several city organizations which are mobilizing such labor and will be glad to put you in touch if you will write us how many hands you want (male or female), for what kind of work, what you can pay and whether or not you can board and house them.

The Whole Cake—or Only Half?

WE have often heard it said that the secret of the success of the big packing establishments lies in the fact that they make use of all parts of the hog except the squeal. The other day we came across a dairyman who was practicing almost the same thing in his business. Instead of selling whole milk he was manufacturing it into finished products by means of a separator, churn and live stock. The making of good butter was his chief object. The fresh, warm skimmed milk he had for his poultry, pigs and young stock. Twice a week he saved it and made cottage cheese when the pigs received only the whey. When he churned, the butter milk was saved for one customer who took it all at five cents a quart. The butter was taken to market by automobile and commanded a good price. Here was a man who was not following the lines of least resistance and shipping off the farm each day all the products of his dairy in the form of whole milk. He was only acting on the business principle that the nearer a finished product a factory turns out the greater share of the consumer's dollar does he get.

The dairy cow is the producer of man's best, most serviceable and one of the cheapest foods, but we have often wondered if her owner was always realizing the most he could from her. The annual season of surplus in the city milk supply is about here, so why should not this be a good time to look into the selling question. If butter does not offer the opportunity, have you ever investigated the cream or ice cream possibilities of your market? Success never comes to him who waits and does nothing.

Sheep's Greatest Enemy

IT has not been so long since the mere mention of sheep raising in the East would bring forth a lot of objectors, saying that it could not be done, primarily on account of the dogs. Lately, however, public sentiment on this subject seems to be changing. In view of the conditions pointed out by Mr. Bigelow, of the Philadelphia Wool and Textile Assn. in this issue, it is well that this change should be taking place.

Our Pennsylvania readers will be glad to know that a new bill regulating the keeping of dogs has been introduced into the Legislature, referred to the Agricultural Committee and been the subject of several hearings. It is known as House Bill No. 1345, and every one who is interested in seeing the sheep industry come back into this state as it was some years ago, would be helping the cause by writing to their representatives in favor of this bill. It is a good bill and has the approval of all interests concerned. Its fate will depend on what interest farmers take in it.

A new way of overcoming this dog question has been pointed out by the Philadelphia Wool and Textile Assn. They have suggested to the Secretary of the Treasury and to members of Congress that a federal tax be levied on all dogs in the United States. Just at this time when the Government is looking for ways to raise revenue and also to increase the food and clothing supply it appears as if this might be a way to kill two birds with one stone. A federal tax on dogs going through as a war measure could bring about conditions which it would take years to accomplish through the action of the various states. Now would be a good time to bring this matter to the attention of the Ways and Means Committee in Congress. If enough of us do it, results will surely follow.

A Remedy to Curtail the Enormous Waste of Food Stuffs

GEORGE HILDEBRAND
Deputy Commissioner New York State Dept. of Foods and Markets

Men of means and large affairs are little concerned regarding the price they pay for food stuffs. They are never obliged to lessen the amount or quality of the food used in their homes because of its high price, and they are, for the most part, indifferent to the matter. Occasionally men of great means sympathize in a humanitarian way with the high cost of living and their dependent workmen, or the poor generally, but they have no time to spend in opposition to the present system of food distribution or to the working out of an economic reform for the benefit of the world.

The enormous waste in food stuffs is the vital cause for the high cost of living. This waste of food takes place on the farms, as the farmer is unable to market a certain percentage of his products because of the inefficient methods of distribution and selling. Then we have the waste when it arrives in the city market, which is due to delay in delivery caused by the practice of passing food from one dealer to another in speculation. Municipal authorities in many cities have stringent health regulations and a large force of inspectors who seem to enjoy confiscating large quantities of food to make a favorable showing to their superiors. These city inspectors condemn whole packages of food, particularly fruits and vegetables, including some eggs, when only a small fraction of the entire package is damaged and the balance of which might be repacked and preserved.

The inefficient methods of distribution is another important factor in the high cost of food stuffs. Commission firms, soliciting consignments from the producers, employ agents to go into the country to solicit shipments for them. The expense of getting this business is heavy and must be added to the cost of food. From lack of organization among the producers, most farm products are shipped in small lots by express, when shipment could be made for much less with carload freight rates. When these products arrive at the market they are carted to a salesroom or store house. This cost is added to the price of food. Here it is sold and goes through several wholesalers and jobbers, frequently as many as seven in all, before it reaches the retailer, each handler taking a profit. When the housewife buys her daily supply, she pays her portion of the accumulated cost of waste, commission, extravagance and profits.

Under the present system the producer is obliged to entrust the sale of his goods to the commission dealer in the city. Sometimes this dealer is honest and does the best he can for him. Sometimes he manipulates the sale as best he can to his own advantage, and there are many cases where the producer gets no returns at all for goods consigned. For this reason there are many producers who prefer to sell their goods at home or in nearby markets far below the market price, to avoid this practice. This has its effect in reducing the supply of food in the large centers, which also increases the price of food stuffs there. A remedy for this condition is a direct, efficient and economic system of distribution from the farm direct to the consumer through a terminal wholesale market system and the retail store. The plan includes the establishment of country packing houses for food products at the railroad station in the local producing centers throughout the state. The producers adjacent to this station would organize into co-operative associations and would own and operate this local packing house. They would bring their produce to this local packing house just as it comes from the tree or the ground. An efficient manager in charge of the packing house would grade and pack the products, and, if located in a town or village, would supply the local demand and ship the balance in carload lots to a terminal wholesale market in the larger cities. The food would be received in the city terminal market by a state licensed auctioneer or salesman, operating under the supervision of the state, who would inspect the goods, make an open sale and keep an open record of the receipt of the goods, of their condition, weight, price and of the person who purchased them. Sales would be made in quantities to accommodate the city retailer, so that he could buy his supply direct from the agent of the producer, and, of course, the housewife would buy daily from the retail stores.

The expense of grading, packing and freight to the terminal market, and for the sale in the wholesale market, would be a charge against the producer and this expense would be less than the present commission for selling alone. There would be but one charge for cartage from the wholesale market to the retailer. In addition to the open public sale at the wholesale market, the prices for the different grades of goods would be made public and official by a state agency. This would be a protection to the housewife in buying at retail, as this state agency would see that the retail prices were commensurate with the wholesale prices, and that no retailer demanded an excessive profit.

This system will not appeal to the statesmen and others who insist on preserving the status quo. They refuse to consider any measure that could possibly interfere with the present system and with the men who are now established in the trade and who speculate in food products. If their contention prevails, we might just as well stop talking about reducing the cost of living. If we authorize unnecessary middlemen and speculators to take toll out of every pound of food that comes into the city, the housewife must pay that toll in in-

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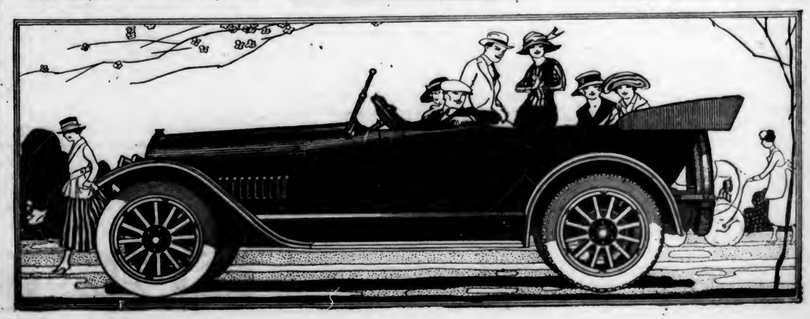

creased cost of her food supply. There is no other place for the dealer and speculator to get it, and there is no way for the housewife to escape it.

If we conclude to preserve and perpetuate this extravagant and speculative system, there is no hope for the farmer to get more money for his produce.

A state agency, operated along the lines above mentioned, can make a saving in the cost of distribution to pay the farmer more for his products and enable the consumer to buy for less. The only certain method of accomplishing this end is by the system of grading and packing and wholesale terminal markets under state control. If this system be adopted, the useless handling, the excessive profits and continual wastes and speculation in food products would be eliminated. The food would move in a straight channel from the producer to the consumer, and, if properly supervised, would undoubtedly save the consumers throughout this country many millions of dollars annually.

Truck Farming Without Manure

R E. ALLEN

All of us like to hear the story of a man who has made a success in farming by ideas and efforts of his own. Such a man is O. E. Beakley, who now owns 400 acres of farm land in New Jersey just eleven miles outside of Philadelphia.

The land is worth $150 an acre for suburban building lots, but Mr. Beakley considers it worth far more as truck land.

There are really four farms in the Beakley place, but for better management and more intensive cultivation all these have been merged into one. On the central home farm of 144 acres Mr. Beakley worked when a youth. The entire 400 acres is cultivated very intensively, and profitably as well, as may be gleaned from the fact that during the past 12 years he has taken $75,000 from the farm and put it in the bank and at the same time has increased the fertility of his soil. He expects to make somewhere between $12,000 and $20,000 from his farm this year.

The story of the remarkable change in the worth, as well as the value of the Beakley farm in a period of twelve years, is a long one. It began, of course, with his acquisition of the farms. He had to wait until they became worn out and depreciated in value so as to be within his means. Even when he did buy his first farm it took some borrowed capital, in addition to the money that he had saved.

Since that first year, Mr. Beakley's farm has undergone a steady and wonderful improvement. The light sandy soil typical of all South Jersey farms has been made heavier and less liable to wind movement. It has been filled with humus, thus furnishing the plants a better foothold and giving a greatly increased water-holding capacity. Deep plowing has brought up the subsoil and made the whole soil deeper and better suited for the development of plant roots. But the chief change has been in the increased fertility and greater productiveness. These conditions have been brought about by the use of cover crops and fertilizers. There is not a foot of his plowed ground that is allowed to go raw over winter. It is all covered up with rye, vetch or clover. If this were not done the soil would blow and wash away and all the fertilizer would freeze out and be lost. Even if he don't get to sow rye till quite late he sows it anyway and there's always some growth to cover up the bare ground during the winter. This always gives a lot of green stuff to turn down in the spring.

"A big, heavy growth of rye or vetch or alfalfa is better than manure any day," he says. "It's easier to grow and to apply—all you have to do is turn it under. It's the cheapest kind of manure and you can get all you want of it. There's nothing like it.

"I used to say that I could use manure and raise better crops than the man who used fertilizer, but I wish now that I hadn't said that. I *know* now that I can use cover crops and fertilizers and always beat the man that doesn't use anything but manure. That's sure."

Only enough cows to supply the family with milk and butter and only enough horses to work the farm with are kept. The manure that they produce would, of course, be entirely inadequate to maintain the fertility of more than a small part of the farm, so cover and green manure crops are an absolute necessity. In fact, Mr. Beakley says:

"I'd sell all my manure if I could get anything for it. I don't need it and it's a nuisance to handle. I could get along without any at all by just growing stuff to turn under. Green cover crops are the cheapest and best kind of manure."

Another point that makes Mr. Beakley's farming system a success is his comparatively heavy use of commercial fertilizers. His fertilizer bill is between $3000 and $4000 yearly. On the main farm of 144 acres he used over $1000 worth of fertilizer this year. He bought 85 tons of high grade 5-10 fertilizer this season and several tons more of special fertilizers. It is, of course, self-evident that the Beakley system of maintaining and increasing soil fertility is equally dependent upon the use of fertilizers and the use of humus crops. Either one would be more or less of a failure without the other, but together they make up the winning combination. The green crops supply the humus and the fertilizers supply the plant food. Altogether, it is a remarkably simple system and at the same time wonderfully efficient and profitable.

Mr. Beakley's chief crops are tomatoes, potatoes, lima beans, cabbage, corn, hay and alfalfa. One of the finest crops last year was the 15-acre field of Bonny Best tomatoes. Mr. Beakley had a standing wager of $100 that it was the best field of second early tomatoes in south Jersey.

A heavy cover crop of rye was plowed under deep during the spring and the ground thoroughly prepared. An application of 600 pounds per acre of a high grade 5-10 fertilizer was made just before the plants were set out. The plants were grown from specially selected seed, and immediately after transplanting started growing and never stopped until the fruit had set profusely. Mr. Beakley sprays his tomatoes two or three times in spite of the fact that his sprayed plants once blighted worse than his unsprayed ones.

A singular and successful way of growing potatoes is practiced on the Beakley farm. The cover crop is turned under early and the potatoes are planted in double space rows. He applies 400 pounds of the 5-10 fertilizer to the acre. Between the potatoes he plants corn or lima beans. He usually obtains more than 300 bushels of potatoes to the acre by this method in addition to the crops of lima beans or corn which he finds just about pays all the expenses, leaving the potato crop a clear profit.

It is Mr. Beakley's usual practice to follow the potato crop with grass or alfalfa, which is wonderfully benefited by the fertilizer the potatoes do not use. In addition to this he always heavily top-dresses the grass and alfalfa with a very high grade ammonia fertilizer applied at the rate of 250 to 300 pounds per acre. Cultivation is one of the big factors of Mr. Beakley's success. He hates the sight of a weed. "All I cultivate for is to kill the weeds. My ground is so loose it doesn't need much stirring," he says. "It makes me mad all over to see some weeds out in a field that ought to be clean. A weed uses the fertilizer that the plant ought to have and if I let the weeds grow I'm wasting my fertilizer and ruining the plant at the same time."

Mr. Beakley markets practically all his produce in Philadelphia through commission men. For the great majority of his crops he always finds a good market. Sometimes he misses it, however, and loses money on a crop. He seldom or never loses money on two crops the same season. Two years ago he had to plow under a fine field of Jersey Wakefield and Copenhagen Market cabbage. He consoled himself by saying that the cabbage made a good green manure crop and helped the hay that he took from the field the past year. Another year the market left him with a field full of cantaloupes..

"I'm not growling about bad markets, though," he says, "because the good markets I strike a whole lot more than make up for the bad ones."

Produce More Honey to Relieve Sugar Shortage

Honey is better than sugar. It is more easily digested. It can be used in place of sugar or syrup. Enough honey goes to waste each season on every farm to relieve the high price of sugar in the home. Let the bees save this waste. In most receipts honey can be substituted for sugar with an improvement of the finished product. Conditions incident to the war point to a sugar shortage, so it is important that beekeepers increase the yield of honey. This can be accomplished by enabling the bees to more thoroughly pasture every acre of cultivated or waste land, according to Leonard Haseman of the Missouri College of Agriculture.

A few good stands of bees on every farm will help increase the yield of fruits and other crops by the distribution of pollen from blossom to blossom besides storing surplus honey. Where there is a continuous supply of honey producing plants, such as fruit, berries, linden, white and sweet clovers, with the numerous wild flowers throughout the season, above 50 pounds or more of surplus honey can be secured per colony. An apiary of a dozen colonies in standard 10-frame hives, with proper care, will average 50 gallons of honey a year with some increase of colonies.

A start in bees may be had by transferring them from bee trees, catching run-away swarms, or buying a few swarms from a neighbor. Bees are less trouble than anything else on the farm for the profit secured, but they must not be neglected. They respond to proper care and will give a good return for the time devoted to them.

Investigations by the Forest Products Laboratory, at Madison, Wisconsin, have resulted in the use of spent tanbark in the manufacture of asphalt shingles to the extent of 160 tons per week. The value of the bark has been thereby increased from 60 cents to $2.50 per ton.

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Keep Some Runners for Revenue

MRS. E. G. FEINT

For fifteen years the Runner duck has been my favorite for all-around dependableness. I have found them absolutely unequalled as egg producers. As one of the pioneer breeders of the true type of Runners in this country, as a member and director of the club that was called into existence to prevent this type from unwise deterioration, and later secretary of that club, I feel that experience has taught me something of their good qualities, as well as a knowledge of their weak points.

When subjected to unwise or unskilled management any breed will show its weak points. And in the years that I have bred Runners I have certainly had occasion to see every sort of mismanagement imaginable visited upon them. Yet the results have always led me to believe they will stand more of this sort of thing and come out with a good record behind them than any breed I have ever known. But that is no excuse for neglecting them. Rather it is the best of reasons for giving them a fair show.

As with all breeds, there is a choice in the various types of Runners to be found today. If you have runners that are not doing well by you with proper care, then look at their ancestry. There is where the trouble probably lies.

In the craze for false color ideals some of the Runners have been led far away from the ideal Runner type, which features length of body, uprightness of carriage and general qualifications which tend to produce an egg-producing conformation. In the early days of the breed in America certain breeders not interpreting correctly the English ideal of a Runner, as given in the English Standard of Perfection, thought that a fawn and white female to match the drake of that color, though non-existent, would be a fine thing. The English type of Runner was then, and is today, the true type of Runner perfection—a fawn and white male with a brown and white female with a slight penciling of black. The English did not then, and never have since, magnified the importance of color. Shape or type was the thing that counted, as it has a direct bearing on what the bird may be depended upon to do. The type bred in this country and now known as the American Standard Runner is a different type in material ways. The fawn and white female, with her shorter body, and the green eggs that came with the new blood that was used to get her color, and her loss of laying powers due to the same reason, is a less worthy member of the Runner family. Contrast the Pekin shapes of this type as seen even in our best shows with the typical long-bodied Runner of the English type and see which makes for eggs. The true type is sprightly and active of habit, a characteristic which always goes with good egg production.

The breeders of the American Standard Runners are working out the green egg tendency as fast as possible, and by out-crossing with the real Runners are trying to get the long bodies also, and here and there a few individuals have made good laying records, as in all breeds. But why fuss with them when we have the real and the better type all ready for use. We don't have to take any one's say so as to what the Penciled Runners can do. She has an official agricultural college record of 200-217 eggs per year, also an 183 pen average for 8 months.

Many individual breeders have made much better records than these. Yet we who have worked so much and so long with them hesitate to give our own unsubstantiated records, as the better they are the more they are open to suspicion by those who happen to be interested in American type.

I will say, however, that Runners are far ahead of any other duck for laying. The Buff Orpington duck and others promoted for their egg production get their egg tendencies from the Runner blood that was used in their make-up. So why not stick to the Runner—and the best type of Runner at that?

But good laying, especially in winter, depends on good feeding, after the right type of duck has been selected. Ducks need more protein in their food than hens do. By habit they are greater consumers of worms and insect life. Hence this must be supplied when eggs are wanted under artificial conditions, such as cold weather produces.

To prevent bad effects from the heavy protein feed a good deal of green stuff should be supplied. This is also an appetizer and lessens the expense of feeding. A good deal of steamed alfalfa or finely cut waste vegetables should be given to them. I use most sucessfully a self feeding hopper filled with dry mash as follows: 60 lbs. corn meal, 60 lbs. white middlings, 30 lbs. best bran, 50 to 70 lbs. best beef scrap (according to whether they are getting any animal life outdoors or not), 10 lbs. oil meal, and 10 lbs. alfalfa meal. The hopper is opened each noon and left open until the night feed. At morning I give a moderate feed of one part each of cracked corn and wheat, and a half part of oats, and at night I give all they will eat of the same grains. They do not get overfat on this. It is a simple, labor saving method of feeding, and they shell out the eggs like wonderful machines. Of course, clean drinking water and plenty of sharp grit is always within their reach. Swimming is not necessary, although very desirable, as it gives fine exercise and a pond or creek furnishes them much of the best natural food, and they keep so clean, remaining away from the buildings because of it, most of the time.

The farm provides the ideal conditions for them. A dozen or so allowed to run at large will pick most of their living in warm weather and be the best paying proposition on the place. And when once the delicately flavored, large white eggs are used on the table and in the kitchen it will be a real hardship to have to use hens' eggs again. One duck egg will do the work of two hen eggs in cooking. Every farm household should have its little flock of Runners to conserve the food supply and help to keep down the cost of living.

New York.

Have Something Green for Poultry

If hens and growing chickens can have constant access or range on something green growing, like grass, oats, rape or alfalfa the amount of grain needed will be cut in two, is the opinion of the Pennsylvania Department of Agriculture. Also that the hens will lay better and the chickens make a much better growth.

Most poultry yards need a coat of lime. Then the ground should be thoroughly cultivated either by plowing and harrowing, or, if small, then by spading and raking. If the yard is large enough or another run can be arranged for, then the one thing to sow is grass seed. Blue grass, red top, low, Dutch clover, lawn grass or permanent pasture grass mixtures. If the yard is small and the poultry must use it then oats planted every week or ten days is the next best thing.

Keeping something green growing in the poultry yard has another most important value and that is that it trends to keep the soil free of taint, making poultry keeping much easier and more profitable. Or, as a sanitary measure alone it is abundantly worth while to make every effort to keep the poultry runs green.

So important is this matter of clean runs and green food that it is a now recognized fact that where poultry farming is made a business, just as soon as the runs are allowed to become bare and stay bare that poultry farm has made the start to being a failure.

For winter green food or winter succulent food the Department recommends mangel beets above all else. These are easily and profitably grown if there is available a plat of ground where the soil is deep and rich.

Profit Despite High Feed Costs

Present conditions point to a continued advance in the price of poultry products sufficient to justify greatly increased hatching in spite of the high price of feed. Reports received from Ohio farms indicate that the number of chicks hatched is at least 40 per cent. below normal.

Poultry raisers will no doubt find it profitable to set as many eggs as possible during May. If they are properly fed and handled the pullets hatched from eggs set this month should begin to lay during November or first of December.

What We Are Asked

Increasing the Egg Yield.—T. W. B. D., Washington, D. C., writes us a letter asking questions growing out of our article, "To Double the Egg Yield." To fully answer it would require more space than can be given in our columns, because it involves the whole law of heredity as laid down by Mendel. However, to mate a 260-egg cockerel to unknown hens will give a certain percentage (Mendel) of heavy layers and the number can be found by trap-nesting. Inbreeding the father to daughters will set the heavy laying characteristics in the next progeny to another Mendellian percentage, if it was present in the mothers. To introduce new blood two lines must be built up, each with known qualities and there is no reason why inbreeding cannot furnish two lines. Each line is built in this manner: Six females and one male make up the original pen; any son of this mating can be mated back to the pen, five females of which are unrelated to this male, yet these females all had good records. This immediately gives you two families which, when thrown together are only one quarter related. Inbreeding and Mendellic succession was the object of our article, and it requires much thought and many records to follow successfully. Many poultrymen the world over are practicing the methods followed by Barron, England; Mumby, Australia; Pearl, Maine, and Temple Smith, Maryland. The ultimate result is better layers and the Department of Agriculture in Australia has given it much force.

F. V. L. T.

No More White Diarrhea

"I have been raising poultry for forty-five years and never had much trouble except from white diarrhea. Sometimes I have lost my entire incubator hatch with this dread disease. Two years ago a friend told me what wonderful things IOWITE Chick Tonic had done for her chickens so I sent a dollar money order to The Wight Co., Dept. 592, Lamoni, Iowa, for two fifty cent boxes and I want to say the result was wonderful. I used it about eight weeks and raised over six hundred chicks and never lost one. I did not even have a droopy one in my flock and I will never try to raise another hatch of chickens or turkeys without IOWITE Chick Tonic."—Mrs. H. E. Blythe, Unionville, Mo.—Adv.

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EGGS from birds hatched from "Youngs" best pens. No utility stock, strictly exhibition as my show record proves. Prices will surprise you. J. C. Thuman, Box A, Beaver Springs, Pa.

EGGS, 12, $1.00; 30, $2.00. Thoroughbred Rocks, Wyandottes, Reds, Hamburgs, Leghorns, 19 varieties. Also Brahmas, Orpingtons, Houdans, Campines. 35th year. Catalogue. S. K. MOSS, COOPERSBURG, Pa.

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Handling the Hay Crop

OUR EXPERIENCE POOL

We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1220, JUNE 1.—When cutting wheat do you haul it direct to barn, shock it or stack it in the field? How much can you cut in a day? Ever use a tractor to pull the binder or have a small engine to run it? What about putting covers over shocks in case of rain? Tell us in 250 words of any other methods used in getting this valuable crop under cover.

TOPIC No. 1221, JUNE 15.—What are you planning to sow for a cover crop at the last working of the corn? How much seed do you use per acre and how do you sow it? Does it make enough growth to pasture when the corn is cut? Did you ever get a field into sod this way? How many times have you cultivated your corn?

TOPIC No. 1222, JULY 1.—Tell us your experience with late summer seeding of alfalfa. How did you prepare the land? What form of inoculation did you use? How much and what kind of lime did you apply? How much seed did you plant per acre? What do you consider the essentials for success?

S. M. T., Chester, Pa. — As there is only a short time that we have to get the grass at its maximum value, we aim to be thoroughly prepared for quick and efficient work. All tools are gone over beforehand on a rainy day, machinery oiled, knives ground, etc. When the clover heads are beginning to show brown we start on it and when the timothy has just passed the full bloom stage we begin to cut it. We aim to make the first cutting on Saturday afternoon, as this gives the hay a chance to make over Sunday and is ready to shake out Monday morning and haul in the afternoon. We always use our fastest walking team to the mower and aim to cut as much as possible that first afternoon.

On Monday morning we shake out the bunches, if very heavy, with forks, or run the tedder through it, meanwhile letting the man and team cut until noontime. Immediately after dinner we hitch the hay loader to a wagon and the tractor to the wagon and go to the field, putting two men on the wagon to build the load, for there is too much for one man to handle if you are loading big, bulky clover hay. The man at the barn gears up the horses to the second wagon and brings it out and takes the loaded wagon to the barn, where he handles the hay fork and another man works in the mow. We have a boy to drive the horse to the hay fork. In this way we lose very little time and if all goes smoothly can keep two wagons going all afternoon. Before we had our hay loader we had to have two men to pitch in the field and a boy to rake and a man to cock the hay, but now the loader takes it up clean right out of the mowing machine swath and saves all the labor of pitching it on to the wagon, and that is some item, believe me, on a hot day! Last year we put in one 18-acre field without having to rake over after the loader.

As a source of power to draw the hay loader the tractor is without a peer, for it gives a steady, even, slow pull at all times and gives the men on the load a sense of security, for who does not know how every jar seems to multiply when you get up high on the wagon. We have generally used horses to draw the wagons to the barn, as they can go into the barn, but last year we had to use our horses elsewhere part of the time, so by rigging a block in the barn and running a rope through it we pulled a good many loads in with the tractor. The tractor also worked well to the hay fork, as it took less time to return than with the horse.

W. J., Pierpont, O.—The shortage of labor is forcing us to rely on machinery more than heretofore in handling the hay crop. Our plan for harvesting our 80 acres of hay is as follows: One man will use team on mower and rake. This will be his work entirely. Myself and boy will use wagon and hay loader for all hay going in the barn. We will use the gasoline engine and hoist for unloading hay in the barns. We would use slings, but the barns are old, and when we build it is our plan to erect one sufficiently strong to enable us to use slings and handle much more from the wagon to the mow.

For stacking hay we intend using the sweep rake and the overshot stacker. We will operate the overshot stacker with engine and hoist. We have a 6 H. P. engine, and with hoist bolted to the engine skids we can move it about from barn to barn and field to field. It would be much more convenient to have the engine on trucks. We had planned to use fork and cable carrier, but this would require erecting the poles and staking the cable several times, while the overshot stacker may be drawn about and there is less trouble locating it. Two men can take hay from the windrow and stack it much more rapidly than the old way of pitching on and off wagons and hauling to stack. If the older way of hauling is employed three men are required. The horses are hitched

Cutting a Swath 15 Feet Wide With a Team Which Never Feels the Heat

apart, the hay is gathered on long wooden teeth like it was in the days of the old revolving rake of our childhood days. It is pulled to the stack, deposited on a framework of wooden teeth which are drawn upward by tackle and power, then thrown on the stack. I am satisfied this method of stacking hay has made good for years on alfalfa farms in the West, and I see no reason why good practical Western methods should not win in the East. This year the man with mower must look after his work entirely, if hay needs tedding, do this work, and leave hay in windrow for loader or rake. He will have no milking or chores to do, for the boy will do the chores, while the writer will do milking with machine.

A regular schedule cannot be strictly adhered to, but if effort is made to follow work systematically and more machinery is used, one need not suffer for labor shortage.

W. A. G., Vincennes, Ind.—It is quick and not hard or hot work to secure the hay crop now. For cows and sheep we make hay from the little Red clover, and for the horses a mixed hay. The best mixture, we find, is timothy and the big English clover. They mature at the same time, and are allowed to get tolerably ripe.

When putting up the Red clover, having a quantity of old bright straw in the mow, we mix it as the unloading progresses. We find by spreading a coat of straw over each load of clover the hay does not mold, although put up quite green. The mixture is fed together. What straw is rejected is used for bedding. We cut down both kinds of grass one day, and put it in the barn the next if the weather permits.

The cost of securing the hay crop with us is low. Everything is done by machinery, and done rapidly. The machinery and equipments comprise the mower, tedder, hay loader and hay fork for unloading the wagons. We make hay only for feeding, therefore straw mixed with the clover, and the timothy and clover mixed and allowed to ripen well, are always clean and free from dust and mold. When we meet with rainy weather we do the best we can not to mow hay when in a condition that molding results.

W. H. R., Palm, Pa.—We usually have about 60 acres of hay to harvest. I have a grown man and a boy to help, so we naturally avoid all hand labor that we can. An 8-foot mower is used and despite the criticism of people who have never seen one, it is one of the most successful and necessary machines we have. We use a side-delivery rake, which is a combination of rake and tedder. By simply moving a lever the direction of the cylinder is reversed and we have whichever tool is desired. A gearless hay loader is used. We have 20-foot flats to which five horses are hitched. With one man doing the driving and the other two on the load it requires very little time and labor as compared with pitching by hand. When the hay lies very thick it is usually taken up directly from the swath without raking. It is unloaded with a grapple hook and by means of a track the hay can be dumped anywhere in the mow where desired, so it is an easy matter to even it off. If we had to do without any of these tools, I don't see how we would get through. It is simply impossible to get extra labor at this season and with grain harvest coming right in the middle of haying we would not be able to handle it all if these machines were not used.

G. H. D., Washington, D. C.—I consider an 8-foot cut, triple-geared mowing machine one of the most valuable implements for use on the hay farm because it will cover a larger area and cut more hay with less strain on the horses than will any other type of mower. A hay tedder, to my way of thinking, is essential where well cured, high quality roughage is to be made. A horse rake and a hay loader are also essential labor savers except in sections that are too rough for the use of the loader. Low-wheeled wagons are first aids to field pitching where the hay has to be handled by hand, as they reduce the height to which the hay has to be forked.

The most important features of a successful hay harvest are to cut the crop at just the right period when it is ripe enough and still not too mature. Where hays have to be cured in the field a fundamental essential is to build serviceable rainproof cocks or shocks which will favor the circulation of the air and still preclude the entrance of excessive moisture. In the case of hays that can be handled as soon as they are well wilted it is necessary to use all despatch in removing the hay from the field to the mow or stack as soon as possible in order to avoid over-curing in the sun or damage from rains.

I consider canvas hay caps a necessity where alfalfa or leguminous hays are grown that do best if allowed to cure out for a while in the field, as with these caps it is possible to save the bulk of the crop irrespective of weather conditions, whereas, without them during a rainy season much of the hay will be ruined or rendered inferior grade. Promptitude and despatch in efficiently cutting, curing and housing the hay crop are productive of "A" grade roughage, which is in demand on the market, whereas, negligence in any of these operations usually jeopardizes the crop and lessens its market value.

I. E. B., Franklinville, N. Y.—The machines we find most essential to successfully handle our hay crop are the mower, side-delivery rake, hay loader and hay fork. Although ours is a hill farm we have been able, by removing many of the fences between the different fields, thus making the fields when seeded down to grass larger, to run the hay loader with success. Since using it we would not do the haying without one. We like to cut our hay, which is mostly Alsike clover, while it is still real green, and are very particular to have it well cured. This we consider the most important part of the haying. Hay that looks bleached out or that is burnt has lost its nourishment and is really not as good as straw. Cows will not give near the amount of milk on it, and instead of keeping the bowels in good condition it causes indigestion and constipation. Farmers in this section, during 1916, cut their hay when it was too ripe, on account of the weather. Many of them lost cattle in the spring and veterinarians said they were starved to death, although fed an abundance of food; that the hay had no food qualities. We like to put it into the barn with a good green color but yet dry enough so it will not burn or mold. Then we consider our hay in good shape to feed.

R. M., Denmark, Ia.—Haying usually comes at one of the busiest times on a farm and the more labor and time saving tools there are at hand the better. The mower, of course, is absolutely necessary. Then either a rake or hay loader, better both. I use a loader to get up the bulk of the crop, the rake to clean up the corners or for putting the hay in windrows when the ground is too soft and muddy to hold up a loader. I have been using the cylinder and endless elevator type of loader, but do not like it nearly as well as the kicking type. For heavy clover and alfalfa a tedder is necessary, especially in rainy seasons when it comes in handy for any kind of hay. Some farmers around here have side delivery rakes that can be used as tedders as well as rakes. Those who have large fields of timothy have headers and header racks for removing the tops for seed. A clover buncher attachment for a mower is quite a labor saver when the clover is cut for seed. A low-down, broad-wheeled wagon is best for haying, as it saves lifting and the broad wheels do not cut up the meadows as badly as the narrow. A track with a good rope (a poor one is worse than none) and a gentle horse or team to use on the hay rope makes the barn end of the haying easier and quicker. I use a double harpoon fork and like it. I do not like to let my hay get too ripe. I would rather have a little less and have the cattle and horses eat it up clean, than more and have so many woody stems left.

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Soy Beans are Profitable

About 5000 acres are now devoted in Ohio to soy beans, a comparatively new legume that is replacing oats in common rotations and is finding general use as a substitute crop where new seedings of clover or grass have failed or an annual hay crop is desired. The crop is handled much the same as corn, but is planted after May 20th to avoid frosts.

"To Draw the Hay Loader the Tractor is Without a Peer"

While soy beans grow on nearly every soil, the Ohio Station points out that well drained loams are best. When following corn the crop is generally not fertilized, but in most cases 200 pounds of acid phosphate has increased the yield. Inoculation is necessary when soy beans grow for the first time on a field. Drilling in the row with the beans from 50 to 100 pounds of soil from an old soy bean field, or using a commercial culture, supplies the necessary bacteria that grow in the nodules on soy bean roots.

From inquiries sent by the bureau of statistics of the Department of Agriculture of Pennsylvania to their correspondent in each township in the state, it has been found that approximately 50 per cent. of the farmers in Pennsylvania are using lime for agricultural purposes. Reports indicate that farmers generally are pleased with the results obtained from the increased use of lime and the tendency seems to be to use still more. The form of lime used varied according to local conditions but all forms proved profitable when intelligently applied.

Grange Interests

Suggestions for the Lecturer

Successful Granges do not overlook the interests of their women members, but plan to have something each meeting which will be especially valuable to them. The home economics committee of the Ohio State Grange recently published a list of topics for each month in the year. The wide-awake lecturer can assign these subjects to individuals, have the experience of several members on them or treat them in any other way which seems best. The subjects suggested for each month are as follows:

May—Combination of Foods.
June—Beverages.
July—Effect of Cooking on Different Foods.
August—Cooking Utensils.
September—Commercial Food Manufacture.
October—Subordinate and Pomona Grange Dinners.
November—Meat Cutting and Curing.
December—Christmas Dinner: What Shall We Have?
January—Serving the Meal.
February—China, Silver and Glassware.
March—Table Etiquette and Eating Customs.
April—Clearing the Table and Dishwashing.

—o—

The Executive Committee of the Pennsylvania State Grange, following out instructions given to them at the recent meeting in Philadelphia, has established legislative headquarters at Harrisburg under the management of Fred Brenckman. A number of reports have been issued by this office and distributed to each subordinate Grange, giving a careful synopsis of the proceedings at Harrisburg. The members of the organization have thus been kept well informed what their representatives are doing.

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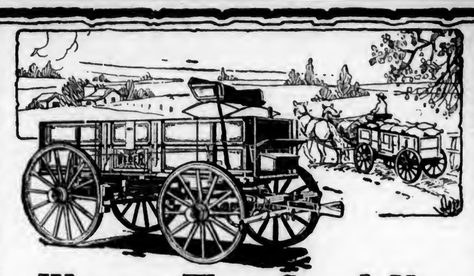
Ohio State Grange Monthly, the official organ of the Ohio State Grange is now published in a new and enlarged style. It has the same size pages as The Practical Farmer, is well illustrated and contains several strong departments edited by the state officers. The Grange, not only in Ohio, but throughout the United States, has accomplished wonderful results, but there is still a lot to do and we hope that the Monthly may be the means of helping to solve some of the big country problems.

—o—

We would like to get an idea of what the Granges throughout the Middle Atlantic States are doing so we can publish some material which will be valuable and interesting to them. If your Grange is one which has a printed program won't you please send a copy to us, or write your last program on a postal card and mail it to us?



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The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

JUNE 1.—For home canning do you prefer tin or glass jars, and why? What things out of your own garden do you can? How large is your family and how many quarts do you can each year for home use? Tell us your method of canning one particular thing.

JUNE 15.—How do you dispose of the spring cockerels? Do you sell all your males or take them away from the hens now that the hatching season is over? What is the best way to kill a chicken? Do you make any use of the feathers? Tell us of any other way you begin about this time to reap the reward of early hatching.

JULY 1.—We hear a lot said about canning, but what about making jelly? Tell us in not more than 250 words how you make the jelly which your family seems to like best. What sized jelly glasses do you find best and how do you cover them?

Get your contribution in early If it does not reach us at least 15 days before the date of issue, it will be too late.

Cooking in Hot Weather

Mrs. E. M. A., Asheville, N. Y.—I am just making my summer plans. We have literally roasted and stewed and sweltered in a south kitchen with the sun pouring in all day and only a wood fire to cook with, so I am "turning my house around." The old kitchen isn't worth fixing up anyhow, and I have room enough without it. I am going to have it torn down. This will in no wise interfere with the rest of the house, as they were built separately and never well connected. In the northeast corner of my house is a room about 8x16 feet, formerly used as a sleeping room. Across one end is a very shallow and unsatisfactory old clothes closet, one half of which connects directly with the cellar. This room will make an ideal kitchen where the summer sun won't scorch us, very little winter wind will touch us, and the old closet will make over into a fine cupboard for dishes and cooking utensils, the cellar end becoming my summer refrigerator. Just back of the kitchen will be a small wood house to contain wood, coal, bin for poultry feed and my new oil stove—a good 3-burner with oven. Until I can afford an overhead tank like my neighbor's, I shall heat water on that same oil stove while we eat in the dining room in the northwest corner of the house. This room has been the parlor and we always called it our "refrigerator," because it never gets warm—nature made it for a dining room and I shall now utilize it as such, at least in summer.

I shall purchase a quantity of Dorothy Perkins Ramblers and flowering clematis, which shall be trained over my kitchen and dining room windows. If my wood house becomes too hot for a cook room my oil stove will be moved on to the north veranda just outside, and I expect to cook just as comfortably as some of my neighbors do when the thermometer soars.

Last, but by no means least, we shall supplement our hot weather cooking with a home-made hay box, which we find answers every purpose of a fireless cooker so far as boiling, stewing, etc. Frying and baking can be done very satisfactorily on the oil stove.

Mrs. L. B., Sinclairville, N. Y.—I have found the ideal stove for summer cooking is a modern oil stove. If you keep them filled and trimmed they are smokeless, odorless and always ready. They should be turned out instantly when food is done. A cabinet is a help for keeping food warm, but not a necessity. If your oven does not brown food to your liking, or burns on the bottom, a sheet of asbestos on top or bottom, as needed, will remedy that, though the best ovens are perfect bakers.

I have gotten along with two gallons of oil a week and I have often used five. It depends on the amount of laundry work, hot water needed, calves to feed and hired help and company to cook for. I heat water in a teakettle, covered pail or boiler. It boils quickly but I would much prefer an oil water heater, which my more fortunate friends tell me are as good as gas water heaters. I have a 3-burner stove with cabinet and a 2-burner without. The small one is the greatest convenience I own. It does duty in winter as extra heater anywhere—chamber, cellar, bath room or parlor. On hot, still days it is found on the back porch, on wash days in the wash room, or at picnics, camping parties, or with us when we clean our country church. I also have a home-made fireless cooker. A hay box made by stuffing hay tightly around a lard pail and covering with hay cushion. This helps greatly in cooking tough meats, beans and cereals. I polish my stove in the spring and it keeps very nicely all summer, because I do not use it. In winter I keep eternally at it with the best polish I can buy.

Mrs. M. B. M., Pine Bush, N. Y.—I use my wood range in summer, in which I usually burn coal for ironing and baking and I have a blue flame, 3-burner oil stove on a box in my wash room, and also a 1-burner wick oil stove on which I can do many things; but it is particularly nice to heat water. I can set the latter on range, or anywhere. I have a small oven which I can set over one blue flame, and a larger one which covers two flames. I can bake a quantity in the latter. It bakes bread and pies very well indeed. I keep the blue flame stove in attic in the winter, also the ovens. The only objection to an oil stove I find is, one cannot have the wind blow on it, but if one cannot have gas it is the next best. Very little heat and no ashes to take out. I have a toaster and can toast beautifully, also broil.

I paint my range with black japan, all except the top, which I wipe off every day with a damp cloth. I occasionally rub it over with a cloth dipped in melted paraffine wax, which keeps it in very good condition. I like to use the range when weather is not too hot, for I can cook and bake several things at the same time without so much attention as I have to give to the oil stove, though I suppose the latter is much less expense for fuel.

Mrs. C. B. F., Hornell, N. Y.—I often wonder how a farm woman can get along during the sultry summer months without some way of doing her work aside from using a big kitchen range. Since the first year we kept house I have had an oil stove with oven. They are surely a boon to the farmer's wife, as well as the farmer. Ours is in use summer and winter, having been used down the cellar two winters to save our potatoes and also to heat the guest chamber. During the cool mornings in summer I fire up the range for about an hour and have the reservoir, teakettle and dishpan full of water, which lasts me until after dinner. On sultry mornings I heat the water as I need on the oil stove. I have never had any trouble with the stove and have used the same wicks that were on the stove when it came. Last summer I bought some stovepipe enamel and gave it a coat of that to prevent rusting. It costs us about 25 cents a week for oil during the summer. My range has been in use for nearly five years and has never been blackened but once. I put just a little compound of lard on an old stocking and go over the stove once a week, which seems to do so much better than blacking.

Mrs. K. R. G., Ulsterville, N. Y.—An oil stove is the greatest possible time and labor saver for the busy housewife during hot weather. A good many people are a little afraid to try one, but you will not run any risk, providing the burners are kept clean and the stove is not placed in a draft. Breakfast and supper can be cooked on the oil stove entirely, thus saving the labor and heat of a coal or wood fire. A good many dishes can be cooked while you are baking with the coal stove, and simply reheated on the oil stove when wanted. By a little careful planning and forethought the housewife can save quite a little time that would otherwise have to be spent in a hot kitchen.

The best way to keep a range polished is to use the paste polish and mix with turpentine or kerosene instead of water. This gives a good lasting polish. When the stove becomes grease spattered wipe off with a rag moistened with kerosene, but be careful the stove is not hot.

Where there is not hot running water in the house the handiest method is to have a tank attached to end of the range. Such tanks generally hold from 13 to 24 quarts and always insure a good supply of hot water.

M. G. F., Dryden, N. Y.—For hot weather I have used, for many seasons past, a 2-burner blue flame kerosene stove. By keeping it in good wicks and well cleaned I find that it gives quick heat, no smoke and heat sufficient to bake in a double oven of size equal to the usual range oven, or six loaves of bread at a time; also to iron, wash or run my steam pressure canning outfit, which fits one burner only. It has never given trouble but once, when an inexperienced worker turned the wick too high and left the room. Care should be taken that the wick is not too high and that a steady blue flame is given. Forcing the flame causes smoke and gives less heat, uses more oil and is dangerous. When ironing I place three irons over one burner and cover them with an old basin to keep in the heat. This gives quick, economical heat. I use it to heat food for the fireless cooker, as there is no waste of heat or fuel. For cool evenings I place the oven on the stove to increase radiation, and light one or two burners, as needed. I know of a student that heated a large room all last winter in just this way, no other heat being provided, and the expense for fuel was less than for coal or wood, with kerosene at 11 to 12 cents a gallon.

Mrs. F., Plymouth, N. H.—During hot weather I use my wood burning range, a 2-burner oil stove and a one-compartment fireless cooker for our family, averaging five. The range stands in the kitchen where it is used the year around. The oil stove is on the pantry shelf. Early in the morning I have a hot fire in my range and turn dampers to heat water in the tank. I start meat for dinner, boiling it hard 15 or 20 minutes, then place it in fireless cooker. I do baking for the day, then let fire go down and do breakfast and cooking dishes together. I cook vegetables over stove often, then warm them up for dinner. It would be a good investment to have a 2 or 3-compartment fireless cooker, but my small one is a great help. In it I cook meats, salted or fresh, beans or any pudding, custard, etc., that could be baked or steamed. The soapstones I heat very hot, and custards, sea moss, farina and milk puddings cook perfectly if not quite boiling hot when put in. I plan my meals a week ahead and manage to get the cooking all out of the way the first thing in the morning. The water is hot in tank for dinner dishes usually. At night it is possible to heat any needed amount for dishes or baths very quickly over oil stove. Often the water in tank is warm enough for bathing.

I keep my range polished by using a 5-cent size string dish-mop kept in an enameled pint saucepan with a 6-inch handle, adding a little blacking and moisture as needed. My hands never come in contact with the blacking and my stove shines to perfection. Wipe off nickel trimmings with newspapers and a commercial cleaner.

Mrs. W. M. C., McKees Rocks, Pa.—During the hot weather we have a gas hot plate, which is placed on top of the kitchen range to do the cooking. We also have a baker for this hot plate, which we have found very convenient, especially if we wish to have a baked meal, roast or pudding. When we have the threshing machine or any number of people we remove the hot plate to a bench at the end of the range, and use the range, too. We have natural gas from a well on the farm, and as our kitchen has three large windows it is always cool in summer.

We have a galvanized boiler in the kitchen with a small gas burner under it. This furnishes hot water for the bath room, kitchen, laundry and sink on the porch. We use a good brand of stove polish, occasionally rub the stove with a newspaper, keep it well dusted and brush it off often. It only requires polishing about every ten days, with the above treatment.

X. Y. Z., Hartley, Del.—After having tried several kinds of coal oil stoves, I bought a gasoline one with many misgivings, as I am very much afraid of gasoline, and treat it with the greatest discretion. I find my gasoline stove to be all the manufacturers claim for it, and more. It lights with a torch, and once lighted is immediately ready for use. The burner is just under the vessel used to cook in. There is no smoke, odor or dirty cooking utensils to clean from the blaze. If I want a very hot fire I have it and if I want to cook anything slowly I regulate the burner accordingly. While gasoline today is rather expensive yet very little is required, as a gasoline stove does not use nearly so much oil as a coal oil stove. On wash days I have a fire in the range, and once in a while at other times, but for all-around use the gasoline stove is the labor saver for me.

I have a steam cooker that I use on my stove. With it, over one burner, I can prepare a whole dinner except coffee. I also can all kinds of fruits and vegetables in the same way. Any one cannot go amiss on a good gasoline stove for comfort, cleanliness and sped.

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8024.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. Linen, madras or crepe de chine can be used for this waist.
7686.—Girls' dress. Cut in sizes 6 to 12 years. This dress has a separate guimpe, with long or short sleeves.
7431.—Misses' dress. Cut in sizes 14 to 20 years. Linen, serge or gabardine can be used for this dress.
8230.—Boys' rompers. Cut in sizes 2, 4 and 6 years. Rompers are joined to lower edge of yokes.
7001.—Ladies' waist. Cut in sizes 34 to 44 inches bust measure. Linen, madras or crepe de chine can be used to make this waist.
8090.—Ladies' dress. Cut in sizes 36, 40 and 44 inches bust measure. The dress is cut in one piece and long or short sleeves may be used.
7803.—Ladies' skirt. Cut in sizes 22 to 30 inches waist measure. The skirt is cut in three gores.
8258.—Girls' dress. Cut in sizes 6 to 14 years. The dress closes at the back and the skirt has a one-piece gathered flounce.
7935.—Ladies' skirt. Cut in sizes 24 to 34 inches waist measure. This skirt is cut in two gores.
7821.—Ladies' dress. Cut in sizes 34 to 42 inches bust measure. Dress consists of a separate guimpe, an overblouse and a three-gored, yoke skirt.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA

What Our Farm Women Ask and Answer

H. W. W., Virginia, writes to us: "In reply to a request by Mrs. A. I. M., of Pennsylvania, I am enclosing a tested receipt for brine that will keep butter perfectly sweet and fresh for a year. I am now using some put up last October and it is just as good and sweet as when first made. I hope that this will help some other housekeepers as it has helped me, during this time of high prices.

"To 3 gallons of brine strong enough to bear up an egg, add ¼ pound of good loaf sugar and 1 tablespoonful of saltpetre; boil the brine and when it is cold strain carefully. If practicable, make your butter into small rolls or prints, wrap each well in a clean muslin cloth (old pieces will do), pack the butter closely in stone jars and allow the brine to cover it to the depth of 4 inches (this excludes the air), place a weight over the butter and keep it all submerged in the brine. Tie a cloth over top of jar to keep out dust, etc. Will keep best in a cool, dark place. I keep mine in the cellar."

Mrs. G. McH., Tennessee, asks us: "Would it be possible for you to give instructions and directions for canning asparagus from the home garden for later use?"

With the cold pack system of canning we understand that the following method has given excellent results:

"Select asparagus stalks of uniform age, size and color. Prepare them by washing well with a vegetable brush. Cut off the woody part of stalks. Cut the stalks into long or short pieces of uniform length. Blanch from three to five minutes according to the age of the vegetable and then plunge quickly into cold water. Place the rubbers in position and fill the jar with the asparagus, packing as closely as possible—with the tips up if whole stalks are used. Add a teaspoonful of salt to each quart of the vegetable and fill the jar with boiling water. Adjust the tops and partially tighten them. Place jars upon rack and lower into the canner containing hot water. Sterilize young, tender asparagus an hour and a half; mature asparagus two hours. Remove, tighten tops and set out of draft to cool."

Uses for Rhubarb

MRS. F. M. HAYNES.

After rhubarb is washed and rinsed I cut it by the handful with a butcher knife on a smooth, hard pine board which I keep for such things. If wanted for immediate use I pour hot water over it. If not needed for a few hours, it is covered with cold water and set aside. It is really better for being in cold water a day or more. If packed in glass jars covered with cold water, sealed and kept in the dark, it keeps for months. When ready to use much acid is drained off with the water. I always add a little soda before sweetening. I use rhubarb in several ways. One is rhubarb shortcake. Make a rich drop biscuit dough, preferably with 1 pint sour cream, 1 teaspoonful soda dissolved in 2 tablespoonfuls warm water, 1 teaspoonful salt and enough flour to make a stiff batter. Spread in greased pan ⅝ inch deep and bake in hot oven. Turn out on cloth, cut in squares, split each piece and place in saucer; spread rhubarb in and over each part and serve hot with cream and sugar. The rhubarb for this is prepared as above, or covered with boiling water until nearly done, when the water is drained off, soda added and let stand a few minutes before sugar is added and stirred through. We are very fond of sauce as fixed for shortcake.

Rhubarb may be used to stretch strawberries or other berries for shortcake, and its presence be unknown save to the cook.

For rhubarb pie I prepare the rhubarb as for other things and make a good pie dough (for 2 pies 2 pints flour, 1 cup lard and 1 teaspoonful salt; mix, then add enough cold water to hold it together). When the rhubarb is in lower crust add 2 tablespoonguls of flour and two-thirds cupful of sugar; stir with the rhubarb, sprinkle lightly with nutmeg, wet edges of crust and add upper crust, having many steam holes, especially near the edge. Bake in a moderate oven.

Every one likes our jam made of rhubarb and elderberries. The rhubarb is prepared as usual. It and berries are cooked separately until well cooked (rhubarb should boil down) and mashed with a wooden potato masher. I combine about equal parts and about one-half as much sugar as fruit. Cook well and seal. Rhubarb and blackberry jam is excellent. Cook rhubarb as above and add to the berries when sugar is added.

Among our favorite butters are rhubarb and sweet apple, and rhubarb and sweet cherries. The possibilities of rhubarb are limitless to the thoughtful cook, either alone or combined with other fruits or flavors.

Ohio.

Bread Making Hints

The condition of the yeast used in bread making is more important than the kind of yeast, according to Addie D. Root, of the Missouri College of Agriculture. If yeast is allowed to stand in a dusty place or is put into an unsterilized vessel, it will collect bacteria and the bread will have a sour, unpleasant taste. All utensils and liquids should be scalded before using.

Yeasts are small plants which need air. Flour, therefore, should be added slowly and beaten into the liquid thoroughly to incorporate air. Sugar is food for the yeast plant and if given to it will hasten its growth.

If dough is too stiff a harsh, crumbly bread results. The least amount of flour possible to avoid a sticky dough gives the best bread.

The quick even stroke in kneading counts for more than the strength put into it. A thorough kneading distributes the yeast plants evenly throughout the dough and results in bread of the best texture, as the gas bubbles rise evenly. Dough should be kneaded until it has a smooth, velvety surface. If kneaded longer than thirty minutes the elastic quality is completely destroyed.

Yeast plants thrive at a temperature of from 79 to 95 degrees Fahrenheit. When dough is set to rise it should be placed in a clean bowl. If the bowl is covered tightly and an even temperature maintained, it is not necessary either to oil or moisten the surface to prevent a crust from forming. If the temperature is too high the bread will be dark, coarse and sour. If the dough is chilled while rising, the volume will be smaller, the texture rubbery, and an undesirable crust will form. Best results are obtained when dough is kept at a gentle, warm, even temperature until it is twice its bulk, and then worked.

Baking requires as much care as mixing, kneading and rising. The temperature of the oven should be 360 degrees Fahrenheit when the bread is placed in it. It should be allowed to rise after fifteen minutes and lowered after thirty minutes. The bread should begin to brown in patches during the first fifteen minutes and should have an even brown surface after thirty minutes. If the dough is not twice its original bulk or as light as desired, it may be allowed to finish rising in the oven.

Economical Electricity on the Farm

F. C. BANCROFT.

For a number of years I have been looking for some means of getting away from the troublesome, dirty coal oil lamps and lanterns on my farm. We have had several narrow escapes from serious fires from the use of the latter in the stables. Individual electric plants have been too expensive and complicated. A commercial electric company has been within half a mile of us for a number of years but has given no day current, and its night service was usually poor and uncertain. About a year ago I first saw a single unit plant being demonstrated, and in October we had one installed using the larger sized storage batteries. In order to be absolutely safe our dwelling and outbuildings were wired by a professional electrician and passed by an underwriters' inspector. We are using about 60 lamps running from 15 to 40 watts. Not all the lamps are in use at any one time. Thus far there has not been a hitch of any kind. Once a week I put a little engine oil in base of engine and rain water in batteries if required; then every two or three days some one will fill tank with gasoline, press the starting lever and go and forget it; when battery is fully charged motor stops automatically. It has not been necessary to crank motor since it was installed. Just now I am using half coal oil and half gasoline, while a neighbor is using all coal oil as a fuel.

As to cost of operation, the cost of fuel is probably about the same as when using oil lamps—possibly a trifle more, but we are having more and better light. To offset the interest on investment we overcome the necessity of the woman having to fill from ten to twenty lamps and lanterns each day and have far better and safer lights than ever before. An electric iron is already in use and a vacuum cleaner and other utilities will be installed later.

Delaware.

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What Farm Women Can Do for the Red Cross

Believing that many of our readers would be interested in knowing what they could do to help the Red Cross we recently asked the headquarters of the American Red Cross at Washington, D. C., to prepare an article for us. They have sent us the following, which can be regarded as highly authentic and timely.

Inquiries being received daily at the national headquarters of the American Red Cross indicate that there is a mistaken idea on the part of the women of the country as to the nature of Red Cross work, particularly in believing that it is a city movement in which the people of the country can not participate because they do not happen to belong to one of the 562 chapters, most of which bear the name of some city.

The public is eager to help the Red Cross if it needs help and desires it. But there is an immense amount of misapprehension about the society, some believing it to be a charitable institution, others a woman's organization purely, while still others imagine it to be a professional society of doctors and nurses, since the Red Cross nurse has become a sort of by-word. Thousands of women who have learned of the work they can do for the Red Cross are now busily engaged in the making of surgical dressings and hospital supplies, a work which lends itself particularly to the woman who must remain at home.

Can the individual, not only of the cities, but of the outlying villages and the country roads, aid in this work? The answer to this is that not only can Americans everywhere in all walks of life assist, but they must assist if this device of modern warfare is to be effective. "What can I do?" is the universal query. In the first place, you can join the Red Cross. That is the fundamental service. At the outbreak of the war in Europe, the Red Cross had only a few thousand members. Now it has between 600,000 and 700,000 members, but it ought to have several million.

Principally from the membership fees come the funds which the Red Cross needs for its work. It costs you only $1 to join, either with the nearest local chapter or directly with the national headquarters in Washington, D. C. A better form of membership is the one costing $2 per year, because this fee pays for a subscription to the Red Cross Magazine, which tells you every month what the Red Cross is doing, and is accordingly of particular interest to women on the farms who can not keep in close touch with the work through attendance upon chapter meetings.

You can steel your unimaginative heart to pity and still in pure selfishness or fear get value received for the membership fee, for the Red Cross can be regarded as a highly important unit in the army as a fighting machine. In these days of modern surgery and skillful nursing an extraordinary number of men wounded in battle are returned to the firing lines from the Red Cross hospitals in good bodily repair. This means an army always kept up to its greatest fighting strength. It means smaller drafts of soldiers to fill the vacancies. In this cold-blooded way the Red Cross is taken by the Government into the national strategy—to repair the rents in the first line of defense.

But if your $1 or your $2 is the contribution of mercy, then you can remember that it was little more than half a century ago when there was no Red Cross, and after the great battles the wounded sometimes lay for days on the open ground and perished miserably by the thousands, when an organized, trained nursing service could have saved many of them. So it was at Solferino in 1859, where 30,000 French, Italian and Austrian wounded were uncared for—a horror that remains today in the memory of living men. The world cried out in pity then, and as a result of Solferino the international Red Cross movement was begun. Today its brassard all except savages respect.

When you have joined the Red Cross there is much personal service which you can render. If there is no chapter or auxiliary where you live you can be instrumental in forming one, because it is through this organization of chapters and branches that the streams of supplies flow into the hospitals at the front.

The general plan for the organization of a chapter is for a group of men and women to secure official authorization from the director of their division to organize and elect officers. The name, which must be geographical, and the definite territory in which the chapter is to have jurisdiction as the local representative of the American Red Cross are usually determined before authority to organize is granted.

Edgar H. Wells, director of chapters for the whole United States, is stationed at national headquarters, Washington, D. C., and is also acting as director of Home Division, which includes the District of Columbia, Maryland, Virginia and West Virginia. The Northeastern Division includes Maine, New Hampshire, Vermont, Massachusetts and Rhode Island, with John L. Saltonstall, of Boston, Director. New York, New Jersey, Pennsylvania, Delaware and Connecticut comprise the Atlantic Division, of which Albert W. Staub, of New York, is director. Women who reside in other states can write to Director Wells at Washington and obtain from him full information regarding the work.

While the Red Cross nurse is most conspicuous in time of war, there is much for the women with their needles to do at home to supply the nurses at the base hospitals on the field with the necessary equipment. Among the supplies which the women of America have been called upon to furnish are bandages of various kinds, all kinds of hospital linen, as bed sheets, spreads, pillow cases, towels, table napkins, tray covers, wash cloths, hot-water bag covers, ice-bag covers, scrub cloths, dust cloths, operating gowns for doctors and nurses, hospital bed shirts, pajamas, canvalescent gowns or bath robes, socks, handkerchiefs, ward slippers and other articles. Many women also delight in preparing what are known as "comfort bags," into which can be placed many articles not supplied by the Government, such as khaki-colored sewing cotton, white sewing cotton, white darning cotton, needles, darning needles and cases, buttons (khaki-colored and white), thimble, blunt-pointed scissors, cakes of soap, safety pins, common pins, small combs, tooth brushes, tooth paste, small round mirrors, lead pencils, writing pad, playing cards, collapsible aluminum drinking cups, tobacco, pocket knives, shoe laces and any other little articles which a mother can well imagine as pleasing her own son when far removed from maternal care. Of course, each comfort bag does not contain all of the above items, but these are suggestions.

Definite directions for making garments and supplies, and patterns and samples of material together with sample boxes of surgical dressings, accompanied by minute directions, also Red Cross emblems for the pajamas, shoulder wraps, hospital bed shirts and bath robes can be procured upon request from the following distributing centers.

New York, Connecticut and New Jersey women should address Mrs. Belmont Tiffany, 411 Fifth Avenue, New York City. Mrs. John H. Gibbon, 221 South 18th Street, Philadelphia, Pa., will supply information to the volunteer workers of Pennsylvania and Delaware. Miss Elizabeth Clark, 1023 Belvidere Terrace, Baltimore, Md., is supplying the women of Maryland, Virginia, North Carolina and South Carolina. Women in other states can obtain information regarding suplies by writing to the American Red Cross, Washington.

Other People's Business

(Continued from page 194)

ly, "was written to a Mr. Washington Thompson. I don't wonder he shortens it to W., do you? To have Washington for your first name must be a good deal like having the Washington monument in your front yard, sort of overpowering. Of course, as Enid says—Enid's the girl, you know—a love letter as old as that ain't of no real use. Love letters and eggs are good deal alike. You can keep 'em in cold storage month in and month out, but while they don't exactly spoil, they ain't the same as fresh ones."

Persis was talking to give the little woman time. From the pigeonholes of her secretary she produced the letters she needed, and meanwhile kept a wary eye upon the camphor bottle, always within reach for the benefit of sensitive patrons likely to succumb to the ordeal of fitting. To judge from young Mrs. Thompson's colorless face, she might need it at any moment.

"I own I kind of interfered with what was none of my business," Persis acknowledged with as pleasing a frankness as if such interferences were not in line with her normal activities. "But I kind of worried over having a love letter wandering around that way and not getting where it belonged. That might make lots of trouble."

"But who was 'Her?'" demanded young Mrs. Thompson wildly. And Persis, whose sense of responsibility for her kind extended even to her unknown correspondents, looked grave as she answered.

"Dearie, I don't know. But I'm sure of one thing, that it wasn't you. Here's his letter to me, madder'n a wet hen, he was, too. And here's hers. You see it's the same writing as the one your husband has; I'm glad she wrote her name right out plain, because I said particular that the 'Enid' would be enough."

Then Persis dropped both letters and caught Mrs. Thompson in her arms. The younger woman was small and slender, and under the stress of excitement Persis lifted her to the couch as easily as if she had been a child. Then she sprinkled the white face with water from the pitcher on the table and brought the camphor bottle into play, all the time murmuring words of endearment and sympathy whose restorative effect was possibly not second to that of her other remedies. Young Mrs. Thompson returned to consciousness to hear herself called a "lamb" and a "poor dear." She opened her heavy eyes and gave back a rapturous smile to the other woman's comprehending gaze.

"I—I don't believe I ever was so happy," murmured young Mrs. Thompson. "Then he did leave it in his pocket just for a joke. And, oh, dear Miss Dale, if it's a girl I'm going to call her Persis."

(*Continued next issue.*)

Tells Why Chicks Die

E. J. Reefer, poultry expert, of 4365 Reefer Bldg., Kansas City, Mo., is giving away free a new book which tells of a simple home solution that raises 98 per cent. of all chicks hatched and cures white diarrhœa over night. All poultry raisers should write for this valuable free book.—Adv.

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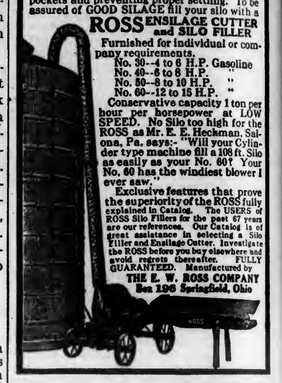

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Our Barter Column

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The Practical Farmer Live Stock and Dairy Section

The Tale of Little Pigs That Paid

GEORGE H. DACY

What success I ever had in pig farming came as a result of costly experience. I tried to produce market pork under Virginia conditions where corn was worth $1 per bushel and brown middlings sold for $1.75 and white middlings for $2 per hundredweight, with tankage commanding a price of $57 per ton. My cost accounting system showed me that during the first winter the pork I produced and sold for 7½ cents on the hoof cost me approximately 8 cents per pound to develop to market bloom. One experience in that line of hog farming was sufficient.

Next I tried the pasture-crop system of raising and fattening hogs and under my conditions this method was the most profitable. Of necessity I was obliged to winter the breeding hogs as cheaply as possible, just aiming to keep the animals in healthy, breeding condition without attempting to make them fat. I used wheat screenings and inferior, low grade rye as well as cracked soy beans and short corn in the grain ration of the porkers, feeding them supplementary soy bean and sorghum hay directly from the stack. The animals relished the roughage and wasted but a minimum of the feed.

The latter part of February I would sow one patch of rape and follow it with a second lot seeded about one month later. The previous fall I had seeded a 2-acre lot to winter rye and this would provide the earliest spring grazing, being ready for use early in April and furnishing good pasturage until the first patch of rape was ready the fore part of May. I took the hogs off the rye in plenty of time, so that the grain would have a chance to develop so that it could be "hogged off" about two weeks after it was mature, when the beards would have softened and the grain be in good condition for the porkers to eat.

The sows with their spring pigs were in fine condition to relish the rape pasturage while the fall shoats got a good start toward maturity on the rye and rape grazing. As soon as one field of rape began to get short I turned the hogs into the other lot, allowing the first area to recuperate and produce another growth of leaves. It is essential to pasture rape at just the right time before it gets too woody, or else the hogs will reject and waste much of the forage.

The latter part of May I also planted one or two acres of soy beans and cowpeas with occasionally a little sorghum which would furnish late summer and fall grazing for the hogs after the rye was consumed. I did not feed any grain or slop while the hogs were on pasture, although I believe my results would have been better if I had done so. We were rushed with field work and hence left the porkers to shift and rustle for themselves. There was running water in the pasture lots. As a rule I found that one acre of the forage crops would carry six to eight shoats weighing 100 pounds apiece for about two months.

After the hogs had gathered the rye crop, which amounted to about 10 bushels to the acre, from the lot that had been grazed in the spring I turned the animals into the soy bean and sorghum patch where there was a wealth of forage and considerable ripe grain awaiting their attention. The lots were so small that it did not pay me to hurdle off a portion at a time, as the porkers did not waste much of the forage and what they did reject made good fertilizer when it was turned under. When the bean-sorghum patch was used up the rape furnished good grazing until the early frosts began to interfere, at which time I again accustomed the porkers to the winter ration.

I kept 8 grade Berkshire and Poland-China sows and one registered Berkshire boar and aimed to raise two litters of pigs a year, the average sow raising 12 pigs a year. Some of the sows would raise as many as 10 pigs to the litter while other sows would roll on their pigs or else be poor mothers, so that they would only raise 3 or 4 pigs at a time. I disposed of the poor sows as quickly as I could get them fat enough to sell. I used the portable A-house as well as permanent pens with yards as winter quarters for the hogs. According to my estimates the expenses of producing a pig up to the age of seven or eight weeks, at which time the animals were weaned, was the cheapest pork production cost which I had. Therefore I determined to develop a trade in 2-months-old pigs. I entered this business because the expense of wintering pigs was high and the liability of mortality at this period was large. I could make cheap pork on summer pasture crops, but it was expensive to produce gains and even to maintain the porkers during winter.

The pig business was a safe proposition for me, as any pigs which I could not sell as weanlings I could later market as shoats or small hogs to follow cattle, or I could fatten the hogs and at least realize a good price for my time and labor spent in producing crops and pasture forage. I ran an advertisement in the leading agricultural paper of my section offering "8-weeks-old pigs for $6

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Percheron Mares Which Produce Type of Horses Always in Demand

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The passage of the selective draft measure by Congress makes certain the immediate preparation and equipment of an army of at least a million men in 1917. All preparations are being made for a war that will last three years, for regardless of what civilians may think, army officials do not expect an early ending of the war into which the United States has been drawn.

The requirements of cavalry, infantry and artillery regiments in horses and mules are set forth in a letter just received by the writer from the War Department, Washington, D. C., to be as follows:

Cavalry Regiment—1541 horses, 152 draft mules, 29 pack mules, 6 riding mules.

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Artillery Regiment—1097 horses, 88 draft mules, 4 riding mules.

These are minimum requirements, and do not take into account transportation trains required to forward supplies from terminal points to field bases. In other words, the number of animals specified above refer only to those actually needed with the troops.

The war strength of a regiment of infantry is approximately 1500 men; of a regiment of cavalry approximately 1300 men; of a regiment of artillery consisting of six batteries of four guns each, approximately 1146 men. While definite information as to the proportion of infantry, cavalry, and artillery to be included in the new army is not yet forthcoming, it is generally understood among army officials that an artillery battery of four guns will be allowed for each 1000 infantry. It seems probable, therefore, that the first one million men placed under arms by the United States will be composed of 500 regiments of infantry totaling 750,000 men, 125 regiments of artillery totaling 143,250 men, and 100 regiments of cavalry totaling 130,000 men, making a grand total of a little over 1,000,000 men. The proportion of artillery certainly will not be less, and may be more, as actual warfare on European battlefields has demonstrated that overwhelming superiority in the artillery branch of the service is essential to efficient operation by the infantry.

It may be argued that there is no probability that the United States will prepare 100 regiments of cavalry, but in view of the danger from the Mexican situation, it appears to be the belief of well informed army officers that at least that many cavalry regiments will be provided for in this year's mobilization.

To equip 500 regiments of infantry will require 34,500 riding horses, 56,000 draft mules, 12,500 pack mules and 3000 riding mules; 125 regiments of artillery will require 137,025 horses, 10,000 draft mules and 500 riding mules. The equipment of 100 regiments of cavalry will necessitate 154,100 horses, 15,200 draft mules, 2900 pack mules and 600 riding mules. The total number therefore required for the equipment of 500 regiments of infantry, 125 of artillery and 100 of cavalry will amount to 325,625 horses and 100,700 mules.

The army has at present only 70,000 head of horses and mules. This means that approximately 350,000 head of horses and mules must be bought within the next six months. No information has yet been received from the army authorities in regard to how the purchase of these horses and mules will be made. In the judgment of experienced horsemen, however, the purchase of so large a number of horses and mules within the limited time available can best be accomplished by setting a definite price to be paid by the army for the different animals that will pass inspection for their respective classes, and by establishing ten or fifteen inspection points where horses and mules may be tendered for inspection. This will permit dealers, large or small, or even farmers, to consign their horses directly to inspection points with definite information in regard to what they will obtain for them if they pass inspection. There seems to be no good reason why the producers of horses should not be permitted to sell them directly to the Government, if they pass inspection, instead of being obliged to sell them through some intervening contractor. It is earnestly to be hoped that the army officials will decide on some general plan.

It must not be forgotten that the allied nations are still in the market, and will continue to be. Their need for horses and mules is as great as for guns and ammunition; indeed, even more so, because they can manufacture the guns and ammunition in their own countries, but their resources in horses and mules have already been exhausted, and the United States is the only source from which they can obtain additional supplies; 853,116 head of horses and 289,062 head of mules have been exported, prac-

What Farm Women Can Do for the Red Cross

Believing that many of our readers would be interested in knowing what they could do to help the Red Cross we recently asked the headquarters of the American Red Cross at Washington, D. C., to prepare an article for us. They have sent us the following, which can be regarded as highly authentic and timely.

Inquiries being received daily at the national headquarters of the American Red Cross indicate that there is a mistaken idea on the part of the women of the country as to the nature of Red Cross work, particularly in believing that it is a city movement in which the people of the country can not participate because they do not happen to belong to one of the 562 chapters, most of which bear the name of some city.

The public is eager to help the Red Cross if it needs help and desires it. But there is an immense amount of misapprehension about the society, some believing it to be a charitable institution, others a woman's organization purely, while still others imagine it to be a professional society of doctors and nurses, since the Red Cross nurse has become a sort of by-word. Thousands of women who have learned of the work they can do for the Red Cross are now busily engaged in the making of surgical dressings and hospital supplies, a work which lends itself particularly to the woman who must remain at home.

Can the individual, not only of the cities, but of the outlying villages and the country roads, aid in this work? The answer to this is that not only can Americans everywhere in all walks of life assist, but they must assist if this device of modern warfare is to be effective. "What can I do?" is the universal query. In the first place, you can join the Red Cross. That is the fundamental service. At the outbreak of the war in Europe, the Red Cross had only a few thousand members. Now it has between 600,000 and 700,000 members, but it ought to have several million.

Principally from the membership fees come the funds which the Red Cross needs for its work. It costs you only $1 to join, either with the nearest local chapter or directly with the national headquarters in Washington, D. C. A better form of membership is the one costing $2 per year, because this fee pays for a subscription to the Red Cross Magazine, which tells you every month what the Red Cross is doing, and is accordingly of particular interest to women on the farms who can not keep in close touch with the work through attendance upon chapter meetings.

You can steel your unimaginative heart to pity and still in pure selfishness or fear get value received for the membership fee, for the Red Cross can be regarded as a highly important unit in the army as a fighting machine. In these days of modern surgery and skillful nursing an extraordinary number of men wounded in battle are returned to the firing lines from the Red Cross hospitals in good bodily repair. This means an army always kept up to its greatest fighting strength. It means smaller drafts of soldiers to fill the vacancies. In this cold-blooded way the Red Cross is taken by the Government into the national strategy—to repair the rents in the first line of defense.

But if your $1 or your $2 is the contribution of mercy, then you can remember that it was little more than half a century ago when there was no Red Cross, and after the great battles the wounded sometimes lay for days on the open ground and perished miserably by the thousands, when an organized, trained nursing service could have saved many of them. So it was at Solferino in 1859, where 30,000 French, Italian and Austrian wounded were uncared for—a horror that remains today in the memory of living men. The world cried out in pity then, and as a result of Solferino the international Red Cross movement was begun. Today its brassard all except savages respect.

When you have joined the Red Cross there is much personal service which you can render. If there is no chapter or auxiliary where you live you can be instrumental in forming one, because it is through this organization of chapters and branches that the streams of supplies flow into the hospitals at the front.

The general plan for the organization of a chapter is for a group of men and women to secure official authorization from the director of their division to organize and elect officers. The name, which must be geographical, and the definite territory in which the chapter is to have jurisdiction as the local representative of the American Red Cross are usually determined before authority to organize is granted.

Edgar H. Wells, director of chapters for the whole United States, is stationed at national headquarters, Washington, D. C., and is also acting as director of Home Division, which includes the District of Columbia, Maryland, Virginia and West Virginia. The Northeastern Division includes Maine, New Hampshire, Vermont, Massachusetts and Rhode Island, with John L. Saltonstall, of Boston, Director. New York, New Jersey, Pennsylvania, Delaware and Connecticut comprise the Atlantic Division, of which Albert W. Staub, of New York, is director. Women who reside in other states can write to Director Wells at Washington and obtain from him full information regarding the work.

While the Red Cross nurse is most conspicuous in time of war, there is much for the women with their needles to do at home to supply the nurses at the base hospitals on the field with the necessary equipment. Among the supplies which the women of America have been called upon to furnish are bandages of various kinds, all kinds of hospital linen, as bed sheets, spreads, pillow cases, towels, table napkins, tray covers, wash cloths, hot-water bag covers, ice-bag covers, scrub cloths, dust cloths, operating gowns for doctors and nurses, hospital bed shirts, pajamas, convalescent gowns or bath robes, socks, handkerchiefs, ward slippers and other articles. Many women also delight in preparing what are known as "comfort bags," into which can be placed many articles not supplied by the Government, such as khaki-colored sewing cotton, white sewing cotton, white darning cotton, needles, darning needles and cases, buttons (khaki-colored and white), thimble, blunt-pointed scissors, cakes of soap, safety pins, common pins, small combs, tooth brushes, tooth paste, small round mirrors, lead pencils, writing pad, playing cards, collapsible aluminum drinking cups, tobacco, pocket knives, shoe laces and any other little articles which a mother can well imagine as pleasing her own son when far removed from maternal care. Of course, each comfort bag does not contain all of the above items, but these are suggestions.

Definite directions for making garments and supplies, and patterns and samples of material together with sample boxes of surgical dressings, accompanied by minute directions, also Red Cross emblems for the pajamas, shoulder wraps, hospital bed shirts and bath robes can be procured upon request from the following distributing centers.

New York, Connecticut and New Jersey women should address Mrs. Belmont Tiffany, 411 Fifth Avenue, New York City. Mrs. John H. Gibbon, 221 South 18th Street, Philadelphia, Pa., will supply information to the volunteer workers of Pennsylvania and Delaware. Miss Elizabeth Clark, 1023 Belvidere Terrace, Baltimore, Md., is supplying the women of Maryland, Virginia, North Carolina and South Carolina. Women in other states can obtain information regarding suplies by writing to the American Red Cross, Washington.

Other People's Business

(Continued from page 194)

ly, "was written to a Mr. Washington Thompson. I don't wonder he shortens it to W., do you? To have Washington for your first name must be a good deal like having the Washington monument in your front yard, sort of overpowering. Of course, as Enid says—Enid's the girl, you know—a love letter as old as that ain't of no real use. Love letters and eggs are good deal alike. You can keep 'em in cold storage month in and month out, but while they don't exactly spoil, they ain't the same as fresh ones."

Persis was talking to give the little woman time. From the pigeonholes of her secretary she produced the letters she needed, and meanwhile kept a wary eye upon the camphor bottle, always within reach for the benefit of sensitive patrons likely to succumb to the ordeal of fitting. To judge from young Mrs. Thompson's colorless face, she might need it at any moment.

"I own I kind of interfered with what was none of my business," Persis acknowledged with as pleasing a frankness as if such interferences were not in line with her normal activities. "But I kind of worried over having a love letter wandering around that way and not getting where it belonged. That might make lots of trouble."

"But who was 'Her?'" demanded young Mrs. Thompson wildly. And Persis, whose sense of responsibility for her kind extended even to her unknown correspondents, looked grave as she answered.

"Dearie, I don't know. But I'm sure of one thing, that it wasn't you. Here's his letter to me, madder'n a wet hen, he was, too. And here's hers. You see it's the same writing as the one your husband has; I'm glad she wrote her name right out plain, because I said particular that the 'Enid' would be enough."

Then Persis dropped both letters and caught Mrs. Thompson in her arms. The younger woman was small and slender, and under the stress of excitement Persis lifted her to the couch as easily as if she had been a child. Then she sprinkled the white face with water from the pitcher on the table and brought the camphor bottle into play, all the time murmuring words of endearment and sympathy whose restorative effect was possibly not second to that of her other remedies. Young Mrs. Thompson returned to consciousness to hear herself called a "lamb" and a "poor dear." She opened her heavy eyes and gave back a rapturous smile to the other woman's comprehending gaze.

"I—I don't believe I ever was so happy," murmured young Mrs. Thompson. "Then he did leave it in his pocket just for a joke. And, oh, dear Miss Dale, if it's a girl I'm going to call her Persis."

(*Continued next issue.*)

Tells Why Chicks Die

E. J. Reefer, poultry expert, of 4365 Reefer Bldg., Kansas City, Mo., is giving away free a new book which tells of a simple home solution that raises 98 per cent. of all chicks hatched and cures white diarrhœa over night. All poultry raisers should write for this valuable free book.—Adv.

AUCTIONEER
Sales made everywhere. Terms $25.00
Breeder of OIC Swine 15 years
Robt. E. Whiteman, College Corner, O.

BAD SILAGE in a GOOD SILO
Is caused by the silo filler macerating the corn instead of CUTTING it, thereby creating air pockets and preventing proper settling. To be assured of GOOD SILAGE fill your silo with a
ROSS ENSILAGE CUTTER and SILO FILLER
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No. 40--6 to 8 H.P. "
No. 50--8 to 10 H.P. "
No. 60--12 to 15 H.P. "
Conservative capacity 1 ton per hour per horsepower at LOW SPEED. No Silo too high for the ROSS as Mr. E. E. Heckman, Salona, Pa. says:- "Will your Cylinder type machine fill a 108 ft. Silo as easily as your No. 60? Your No. 60 has the windiest blower I ever saw."
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If you are interested in farming that pays; and desire full information, write to
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in the best wet weather togs ever invented
the FISH BRAND
REFLEX SLICKER
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and
PROTECTOR HAT 85¢
Dealers everywhere.
Our 80th year.
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tically all of them for war purposes, during the 30 months ending March 1, 1917. In spite of the shortage of ships 40,000 head of horses and mules were shipped in January, 1917, and more than 27,000 head in February, 1917.

Recent accounts from the battle front relating the loss of hundreds of pieces of artillery by the Germans in recent operations state that the loss of these pieces was due recently to the lack of artillery horses.

It is fortunate that the United States is well supplied with both horses and mules at the present time, but it is incumbent upon us, if we are to maintain our resources so as to effectually back up our armies and maintain maximum production on our farms, to see that every good mare is bred to a first-class stallion this season, and that every effort is made to save the foals that will be coming within the next six weeks. The war may yet be decided by the number of horses available to the respective belligerents, for on the far flung battle lines and in the reserve made up of our farm forces, the horse is the most important single factor aside from man.

About Sheep and Wool

(Concluded from page 195)

Possibly the demonstrations on the farms by the county agents throughout all the states are having as great an influence as any other agency in this work, and I have no doubt but what within five years from now there will be marked improvement in all our sheep producing either mutton or wool.

Naturally the question of what is the future of the sheep industry presents itself and it seems to me that it looks extremely bright. Within the last three years the price of wool on the scoured basis has increased 300 per cent. and unless unforeseen conditions occur the limit has not yet been reached. It is a well known fact that during the last few years there has been a marked decrease in the number of sheep in this country, especially in some of our Eastern States and that interest in the business has been at a low ebb. In fact, there has been a marked per capita decrease in all meat producing animals during recent years and the great European conflict has possibly only focused to an immediate crisis the condition to which we were steadily drifting and would have reached in natural sequence of events. Even the problem of home consumption during the next few years presents reason enough for a bright outlook for the business.

The war is also cleaning up the wool supply in an unusual way. The millions of pounds of woolen cloth used in uniforms, etc., which is destroyed are gone forever. Under normal conditions this great mass of fiber would find its way back through trade channels to be used as shoddy and thus fill a want which might be supplied at a cheaper cost. There will also be a heavy demand for wool when the change is made from military to civil life and the millions of men now engaged in this conflict resume their former occupations. Conditions will be similar to those which existed after the Franco-Prussian war, and I can see nothing but the brightest prospects for those who either continue or start at the present time in the sheep industry.

Looking toward the establishment of a profitable market for the future wool crop of the East, which while in the aggregate will be large, and in the individual unit will be small and not susceptible to marketing conditions as they are now found in the West, we have recently started a movement for a wool auction to be held in Philadelphia to take care of this great trade. At a recent meeting of the various interests concerned in this work, plans were talked over and it was the opinion of the meeting that such a system could be worked out but that several conditions would have to be met before everything would be working satisfactorily. Our intention it to have all the wool shipped to the warehouse here, where it will be properly graded by experts and sold on its merits to the highest bidder.

The ultimate advantages of a system of this kind when once established are of untold value to both the grower and the buyer of wool. The small producers will have the services of the same expert graders as the big grower and the tendency will always be to improve the quality so as to rank in the highest grade. The large buyer will not only be attracted to the Philadelphia market because of the ample supply, which will tend to make the wool sell at the highest price, but after the system of grades has been established the buyers will gladly pay the top price, as they will know it will not be necessary to discount it to cover any wool in the consignment which might be below the grade they are bidding on.

Preserve Sows for Breeding

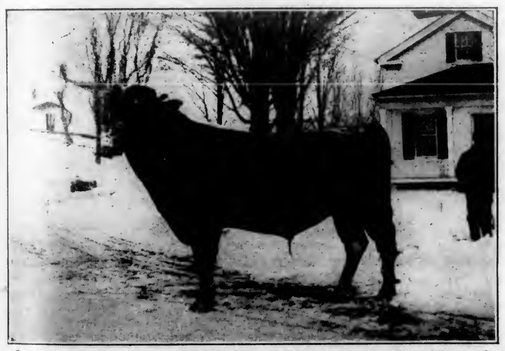
A sow is a good investment. This is true even in these strenuous times of high prices of food concentrates, say specialists of the U. S. Department of Agriculture. The quotations on these feeds are controlled to a considerable extent by the price at which meat animals sell. Hence concentrates usually command a high figure when hogs on the hoof at large packing centers sell at more than 16 cents per pound However, record prices for swine as well as feed concentrates have been a great incentive to "cash in" all the hogs available. That many sows have been included is evident from the fact that on April 1st the correspondents of the Bureau of Crop Estimates reported approximately 3 per cent. fewer sows on farms in the United States than a year before. Further, this is the first year that the supply has not increased since 1913.

At this time the marketing of a sow that can be or has been bred is fairly comparable to "killing the goose that laid the golden egg." Although the fecundity of swine is well appreciated, at times sows are sacrificed when a little forethought would cause them to be retained. Breeding sows multiply five or six times as rapidly as other meat animals. They have an average litter of five or six pigs and may be bred twice a year, although three times in two years accords more with current farm practice. The litters increase in size, on the average, until sows are five or six years old. However, a large proportion of the sows are sold after producing one or two litters and before they have reached the period of greatest usefulness. Occasionally sows are unsuitable for breeding because of their clumsiness, "high" condition, inactivity or barrenness, and these, of course, go to market when of proper weight, but the total sows of this class is a mere bagatelle.

In these days when labor is high and also scarce on many farms, the hog may afford "a way out." Hogs utilize refuse and waste grains, damaged grains and garbage; garnering grain behind cattle or shattered grain in harvest fields; and utilizing slaughter house and dairy by-products. They are also largely self-feeders. The modern farm "cafeteria" (self feeder) gives a pig a chance to make a hog of himself more quickly than he can by the hand-fed route, and it has the

added merit of being the cheapest way of producing pork. A sow, when she is not developing a litter or nursing pigs, can in summer time be placed in a pasture and given very little grain. In winter, possibly the cheapest maintenance ration is a combination of grain and hay, such as corn, wheat, rye or barley and alfalfa, clover cowpeas or soy bean hay. The grain should be limited to one or two pounds per 100 pounds live weight per day. Sows should be given all the hay they will clean up. Sows which show exceptionally run-down condition from suckling their pigs should be separated from the herd and fed grain until they regain breeding condition.

Breeding sows are at a premium and the demand for young stock is unprecedented. The hog buyers state in their reports that they are compelled to take anything that looks like a hog. The fluctuation in the number of hogs in the United States is subject largely to fluctuations in the financial condition of the country. The high prices paid for hogs are a big inducement to farmers to send theirs to market, and as stated before, the high prices of corn caused them to cut loose during the latter part of the year. The high prices paid for hogs and an increasing export trade are the two main factors which make the hog business especially attractive at the present time. Millions of farmers would purchase sows to farrow this spring if they could, but this is almost an impossibility. Those farmers who retained their breeding sows are fortunate. The spring gilts from these litters should not be sent to market for meat purposes, but should be retained or sold only for breeding purposes in order to augment the pig crop next year.



Jersey Sire, Rockwood Interest 110672, Recently Shipped to the President of Venezuela

The Tale of Little Pigs

(Concluded from page 205)

a pair." It was about hog killing time and many farmers were hunting for pigs to fatten for the next year's meat supply, so that I had little difficulty in disposing of the fall crop of pigs. Forty-eight pigs sold for $144 and I had only 8 sows and the boar to winter.

I bred the sows so that they would farrow late in March, which made the spring pig crop ready for market the latter part of May. Again I inserted an advertisement in the farm paper but was only able to sell 35 pigs, as the demand for pigs was not as keen at this time as it had been during the early winter. I carried 13 of the pigs on pasturage until the latter part of August, when I sold the shoats at five dollars apiece, averaging about 50 pounds per head in weight. The average pig which I sold for three dollars at two months of age weighed from 25 to 30 pounds.

I utilized the surplus pasture crops as grazing for calves and in case the calves and hogs could not keep down the growth I would turn a couple of cows into the field for a day or two and in this way prevented any of the forage from going to waste.

When the second crop of fall pigs was ready to sell I raised the price to $7 per pair, as the price of stock hogs and feed were higher than ordinary. I met with little difficulty in disposing of the pigs at the increased price. In fact, several purchasers of spring pigs came back after fall pigs. One man who bought four pigs in the spring purchased a dozen more in the early winter. The second year I sold $350 worth of pigs and I could have marketed 50 more animals if I had had them.

Under my conditions the pigs have paid well. They have been produced on a minimum of feed, most of their nourishment coming from the sow and from the utilization of low grade and waste grains. I used a small hand-power mill in converting the grain into a meal form so that the milling expenses were low, as this work was done during bad weather. In a short time I was able to build up a market for my pigs so that the bulk of the crop was booked and sold in advance. As a side line operation on a busy farm where there is little spare time to devote to the hogs, some system of management such as mine will prove practical and profitable.

Virginia.

Venezuela's President Buys Jerseys

General Vincenti Gomez, President of the Republic of Venezuela, has recently purchased from the Meridale herd the Jersey Bull Rockwood Interest 110672 and cow Noble's Financial Pansy 279259.

Rockwood Interest 110672 is four years old, and a Jersey sire of pronounced dairy characteristics. He has been in service at Meridale Farms for some time past, and they parted with him only at a price which is probably the highest received for any Jersey bull this year. He is a son of Oxford Fern's Lad 95608 out of Interest's Lass 25189'—a representative of the Interest line which has proved so satisfactory in Meridale operations. Noble's Financial Pansy 279259 is a 5-year-old daughter of Rozel's Noble 4464 P. H. C., out of the imported cow Warrior's Pansy 254245 She entered the Register of Merit as a 2-year-old and was well started on another yearly test when sold. She has milked over 50 lbs. a day since last freshening, and in her first four months had made 4410 lbs. milk, 255 lbs. butter. She has been exhibited in several shows, and never left the ring without an award.

PATRIOTISM DEMANDS

That All Butter-Fat Waste Be Stopped

President Wilson's powerful appeal for the conservation of the nation's resources is still ringing in our ears. "The supreme need," he says, "of our own nation, and of the nations with which we are co-operating, is an abundance of supplies, and especially of food stuffs;" and again, "Upon the farmers of this country, therefore, in large measure rests the fate of the war and the fate of the nation."

Wasteful methods must be abolished. Every device that makes for the saving of time and labor on the farm must be utilized. Every plan that makes for the conservation of our food products must have the farmer's hearty co-operation.

And nowhere is there greater opportunity than in the production of dairy products, particularly butter-fat.

"Fats, fats, fats, more fats," that is the demand of the warring nations in Europe. The men who toil and the men in the trenches must have fats. They are the fuel that the human machine must have.

And no fat is so palatable or so easily assimilated as butter.

When it was simply a question of the farmers own loss of profit, the tremendous waste of butter-fat on American farms was bad enough, but under present conditions such waste is nothing short of criminal.

And it is wholly unnecessary.

It is conservatively estimated that about a mililon cow owners in the United States are still skimming milk by some wasteful "gravity" method.

At an average of four cows to the farm, and an average waste of thirty-five to fifty pounds of butter-fat per cow, all of which could be saved by the use of a De Laval Cream Separator, this alone represents an annual waste of at least 140,000,000 pounds of butter-fat.

Then there are, perhaps, a million inferior or half-worn-out separators in use whose owners could save fifteen to twenty pounds of butter-fat per cow per year by replacing such machines with New De Lavals; and this represents another waste of at least 60,000,000 pounds of butter-fat annually.

Also there is the loss of time and labor that a De Laval would save and which could be better devoted to other productive work on the farm. This waste is hard to compute, but it is almost as important as the loss of butter-fat.

These are startling statements, but any dairy or creamery authority will agree that these estimates of waste are really very conservative.

Shall this tremendous waste continue? Will the loyal American farmer permit such waste when he appreciates the duty that is laid upon him to conserve the one article of food that above all others is necessary to the life and health and energy of the men who serve the nation in the field, the factory, the mine—and soon in the trenches?

We have always had an abiding faith in the American farmer, and we believe that if he is made to appreciate the full purport of the President's appeal to him, the appeal will not be in vain; and when he further appreciates what the De Laval can do to save the butter-fat which is now being wasted, and that his patriotic duty demands that such waste be stopped—NOW—our plants will not be big enough to take care of one-half the demand for De Laval Cream Separators.

THE DE LAVAL SEPARATOR COMPANY
165 Broadway, New York 29 E. Madison St., Chicago

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KEEP THEM WORKING

Kendall's Spavin Treatment is the old reliable, *safe* remedy for all cases of spavin, splint, curb, ringbone, bony growth and lameness from other causes. It keeps the horses working—not loafing. What it has done for others it will do for you. Keep a bottle of **Kendall's Spavin Treatment** handy so you can use it quickly when the need arises. A one dollar bottle may save a horse for you. It's worth while to be ready. Ask your druggist the next time you are in town. Tear this advertisement out to remind you. Sold by druggists everywhere, $1.00 a bottle; 6 for $5.00. Keep it in the house for family use, as well as in the stable. Get a copy of "A Treatise on the Horse" at your druggists or write to

DR. B. J. KENDALL COMPANY, Enosburg Falls, Vt. 14

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SALE, JACKS Can suit the most exacting, for Jacks, for size, prompt servers and individuals and quality. Bargains. John E. Voge, Jr., R. R. 2, West Alexandria, Ohio.

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WE will gladly mail on request the 1917 issue of "Meridale Jerseys," the business story of a business herd.

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TO SELL quickly, I have three splendid registered Jersey heifer calves for $100—$35 singly. If you are poor and want a good ditto bull calf at low price, write me. W. F. McSPARRAN, Furniss, Lancaster Co., Pa.

Hampshire Sheep, Berkshire Hogs, Shorthorn Cattle
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High Grade HOLSTEIN CALVES Either sex, beautifully marked, $15 each. Ship anywhere. F. H. Wood, Cortland, N. Y.

SWINE.

BERKSHIRES

The boar Majestic Mammoth 220500, weight 407 lbs. at 7 months, was bred and developed by us. If you want the big kind write to—

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Breed Berkshires

For large litters of husky, hustling pigs; for rapid gains on inexpensive feeds; and for easy fattening. They bring top prices on all the big markets because of uniformity, high quality meat and least shrinkage. Send today for free booklet "Berkshire Hogs." It points the way to more hog money.

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"HAMPSHIRES" Grow very large, as much as 1000 lbs. Weanling pigs ready. Also Guernsey Bulls ⅞ full, 6 mos. old. Free circular.

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Reg. P. Chinas, Berkshires, C. Whites
Large strains all ages, mated not akin, 8 week pigs, bred sows, service boars, Collie and Beagle dogs. Grade Guernsey calves and poultry.
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O. I. C.'S 100 pigs ready May 30th at $12.50 single pig, pair no-akin, $24.00, 8-10 weeks old, pedigreed. Highest breeding. Bred gilts all sold. W. I. OWEN, BEDFORD, VIRGINIA.

DUROC JERSEYS. Lengthy, heavy boned, eligible to registry. Prices reasonable. Best of breeding. J. H. SMITH, R1, St. Marys, W. Va.

P. Chinas—Big Type. Prolific. Quick to fatten. Can't beat 'em—sows, gilts and boars. Last fats avg. 8801 lbs. CHAS. F. COLEMAN & CO., TRENTON, OHIO.

DOGS.

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Machine vs. Hand Milking

Two of our readers have written us regarding their milking machines and as we thought others might be considering this subject their experiences should prove valuable at this time.

Mr. F. C. M., Albion, Pa., says: "I have been milking from 12 to 16 cows with a milking machine for two years. This has enabled me to do my work alone nearly all the time and deliver my milk to town. I have milked and delivered it 1½ miles in 58 minutes with the milking machine and motor truck. I cannot see that it has harmed my cows in any way. They take to the milker very kindly; in fact, they would rather be milked with the machine than by hand. I think the milker is a paying investment, and my expense on it for two years has been only 80 cents. It has saved lots of time and labor, and that means money on the farm."

Mr. W. G. G., Barto, Pa., tell us this: "I am using a milking machine and I think they are a success, as I have been using mine four winters. I am able to milk alone with two machines just about as fast as three hand milkers. I can milk clean without having to go after the machine with a pail to strip the cows, although a cow can be brought to the habit of stripping clean if it is done regularly, but it is not at all necessary if it is not started. Cows like machine milking much better than hand milking. I had three cows that I had to tie before I used the machine, but after I used the machine a while I had no kickers. I have even see a cow lie down while the machine was in motion on her. It will not spoil cows, as I had cows milked with the machine four winters and then they would milk just the same by hand as before. I did not use the milking machine this past winter, owing to the small number of cows which I have, but I am now increasing my herd and will use the milker again. Considering the high cost of labor I believe it a great help to any farmer with more than ten cows to milk."

To the Dairy Cow

W. E. VAPLON.

The dairy cow, long may she wave her fluffy tail her hide to save from gnat and fly and such like pests that seem to like to break her rest. It's she that brings the monthly check for cream she offers by the peck; it's she that often saves from wreck, the farmer who is wise, by heck! The farmer who's afraid to dig, or who to milk cows is too big, the one who'd rather chew and sit or shoot and spit tobacco spit, the kind whom farming doesn't fit will keep on going into debt, it's just as safe as spuds to bet, while neighbor Jones with twenty cows will chase hard times to the bow-wows. To farm these days of high-priced land, you've got to plan to beat the band. To meet the price of high-priced tools and self-adjusting milking stools is surely not the job of fools. The farmer who will crop his land each blooming year for all 'twill stand and will not heed the just demand for something in return will stand at last before the judgment bar and wake with a jolting jar. You feed your horse hay and oats, you even feed your lambs and shoats and then you wonder why the land should make a fuss and grow a stand that's not enough to feed ten goats. Put back into the soil, my friends, some of the elements it lends. Remember 'tis the cow and hog that give your bank account a jog, that fertilize your worn-out soil and help the mortgage man to foil.

Colorado Agricultural College.

Any form of unnecessary waste now is a crime against the country.

News from the Breed Associations

SHEEP.

A meeting was held in Chicago, April 24th, to discuss the question of holding a pure-bred sheep sale somewhere east of the Mississippi river during the late summer or early fall of the present year. There were four leading breed associations represented at this meeting, viz., Hampshires, Shropshires, Rambouillet and Lincoln. After a thorough discussion of the matter by those present, a resolution was offered and unanimously adopted, that it was the sense of the meeting that a permanent organization to promote and provide ways and means for holding a sheep sale should be established, that this organization should be composed of the secretaries of the several associations taking part in the sale, together with one other member from each association, selected by their own organization, and that a sale should be held on Aug. 7th and 8th at Columbus, Ohio, on the State Fair Grounds.

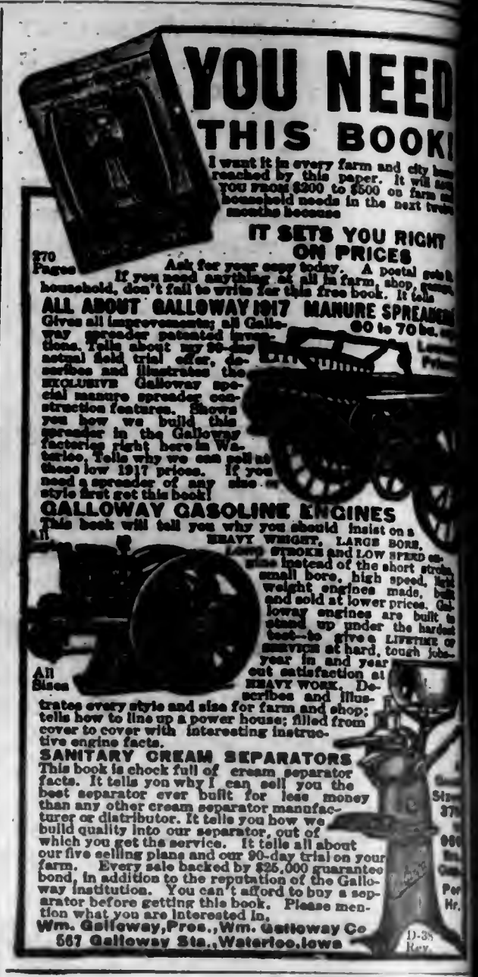
Each association represented thereupon proceeded to select their several members of the committee, with the following result: Shropshires—Julia M. Wade and Dr. H. M. Brown. Hampshires—Comfort A. Tyler and Robert Blastock. Rambouillet—Dwight Lincoln and Leo C. Orth. Lincoln—Bert Smith and Ernest Robson.

Comfort A. Tyler was elected president, with power to select an executive secretary and the offices of the organization would be located at Detroit, Mich. The president was to submit a plan of action complete to each member of the new organization within ten days from the date of the meeting. When approved by a majority, or when a plan of action is approved by a majority of the committee selected, active operations are to begin at once. An extensive plan of advertising will be submitted and the matter will be pushed to a successful conclusion. The name of the new organization will likely be The Associated Pure-Bred Sheep Sale. Other breeds will be urged to join the movement. The several associations will provide sufficient funds to inaugurate the movement, such funds to be returned to them from the proceeds of the commissions on sales. It is intended to make these commissions cover the actual cost only.

Mr. H. Stanley Coffin, president of the American Romney Breeders' Association, recently returned to San Francisco with 100 Romney sheep which he brought from New Zealand. This is the largest importation of this breed ever made into this country and the association is looking forward with a great deal of satisfaction to the good results which will occur in crossing them with the sheep now on the Western ranges.

SWINE.

The American Berkshire Association has provided for special premiums amounting to $1200 at the National Swine Show to be held at Omaha, Neb., which together with $800 offered by the National Swine Growers' Association, will make a classification of $2000 for Berkshires at that show. An appropriation of $500 was made for Berkshire barrows in the single and pen classes at the International Live Stock Exposition. This, with the amount offered by the Live Stock Exposition, will furnish a classification of $1000 for barrows.



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and Sell the Milk

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100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk.

Prevents scouring and insures the early maturity of sleek, handsome calves.

It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 99 Waukegan, Ill.

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for 1917 are better than ever. Our new guy-wire anchorage system insures your silo against any wind. All Green Mountain silos are made of heavy creosote-dipped staves. Hoops are extra strong. Doors fit like a safe or refrigerator. Silage is always sweet.

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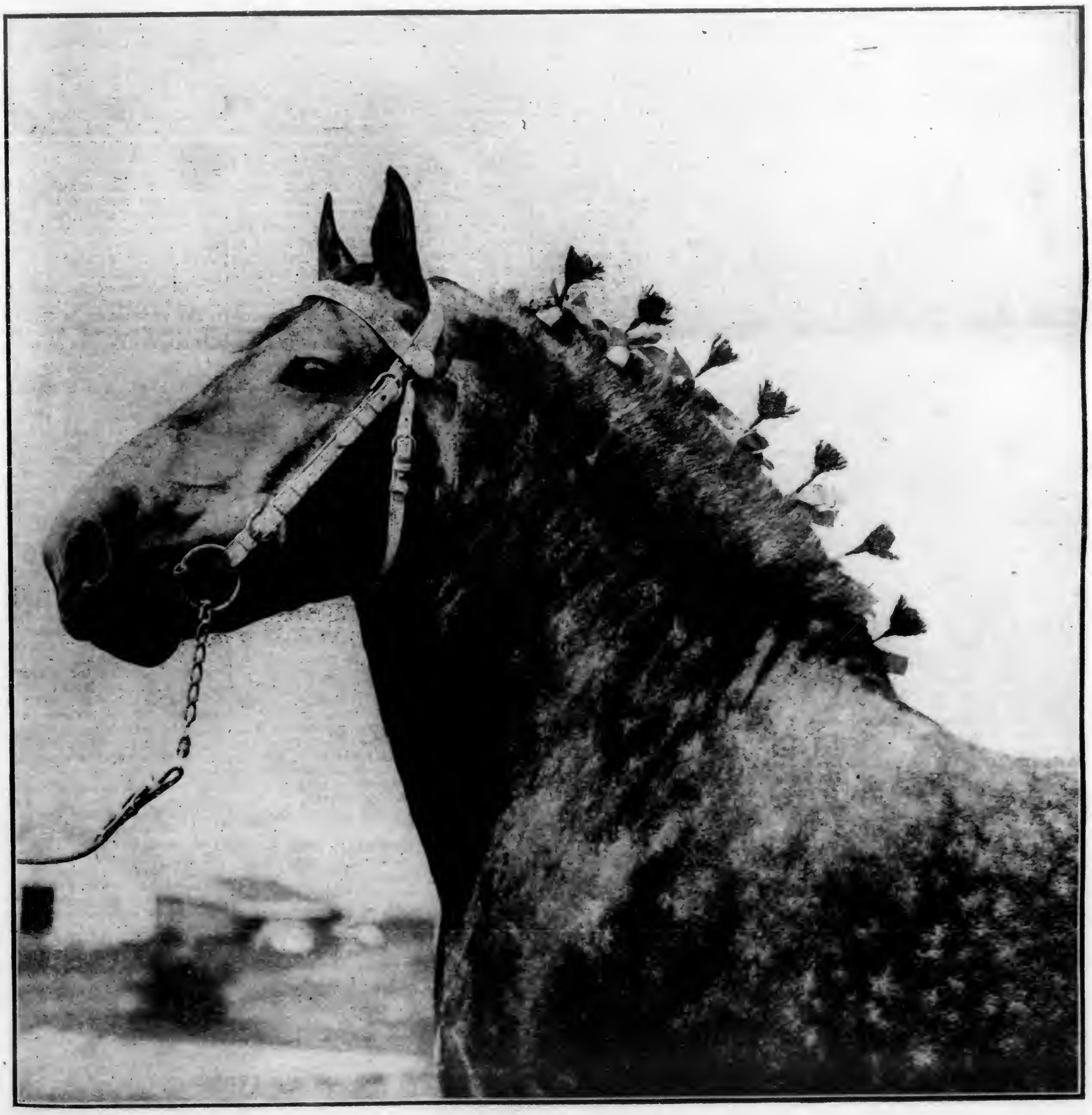

Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

(Copyright 1916, The Bobbs-Merrill Company)

CHAPTER XIV.

AN ACQUISITION.

The Dale homestead was undergoing repairs. For years Persis had patched up the roof when it leaked and papered with her own hands such rooms as had become too dingy to be longer tolerated. Now she was giving free rein to her exuberant fancy in the matter of improvements. A telephone had been installed in the house the day following the communication from the legal advisers of the late Persis Ann Crawford and this in spite of Joel's passionate protests.

"May be a hoax for all you know. Better wait till the money's in your hand before you run into extravagance piling up debts for us to work off later. I guess it's a true saying that if you put a beggar on horseback, he'll ride to the devil."

Within a week the innovations had reduced him to a condition of disapproving dumbness. Paperhangers and plasterers had taken possession of the old house. The roof was being reshingled. The new electric lights gave to each successive evening an air of festive brilliancy. The sagging porch was in process of reconstruction. It was the dull season from the builder's standpoint, and Persis had no difficulty in securing workmen in sufficient numbers to hurry the work with what seemed to herself, as well as to Joel, almost magical despatch. A generous check deposited to her credit in the Clematis Savings Bank had relieved Joel's earlier apprehensions. The bequest was no hoax. But his constitutional parsimony rebelled against the outlay as if each expenditure had meant want in the future. While his dignity demanded that he should cease the protests that were disregarded, his air of patient martyrdom expressed his sentiments with all the plainness of speech.

The feminine half of the population of Clematis was in despair. For Persis Dale had announced with every indication of finality that after she had finished the gowns in hand, her career as dressmaker would immediately terminate: Mrs. Robert Hornblower, bitter because Persis' fortune had materialized before her own, commented freely on the fact that Persis Dale hadn't the strength of mind to come into money without beginning to put on airs. Mrs. Richards, who was so far convalescent that she had been able to attend divine worship the previous Sabbath, rolled her eyes Heavenward and deplored the effects of pomps and vanities on certain constitutions. Even so true and tried a friend as Mrs. West was driven to remonstrate.

"I don't say that you ought to work the way you've done all your life, Persis, rushing from one dress to another, fit to break your neck. But it does seem as if after always being busy you couldn't be real happy to settle down to idleness."

Persis smiled.

"I guess I wasn't cut out for a butterfly, Mis' West, even if I'd got started in time. I'm not afraid but what I can find plenty to do. As far as the sewing goes, I feel like a man I read of who laid a wager he'd eat a quail a day for thirty days. Well, he got along fine. Didn't seem to mind it a bit. When it came the twenty-fifth day and everybody was congratulating him on making his money so easy, he up and quit. 'No use, boys,' he said, when they began to tell him what a fool he was. 'I've just naturally got to the stopping point.' And it's the same with me. I've done my sewing and haven't fretted over it, though when I think of the millions and millions of stitches I've taken in twenty years, I wonder I haven't turned into a sewing machine. But I've got to the stopping point now. It's more'n likely I'll buy my own clothes ready-made, after this."

In a month's time the old house was transformed beyond recognition, the fresh paint of the exterior holding its own bravely against the pretensions of the fresh paper and new carpets within. Thomas Hardin had sent to Boston for those carpets, the patterns in stock not satisfying Persis' exacting ideas. The transaction had been conducted with business-like despatch on both sides, though on one occasion Thomas relaxed his dignity sufficiently to say, "Guess you're going to look pretty fine up there."

Persis dryly admitted the prospective improvement. "Some folks can't bear to part with what's old, but I own I've got a liking for new things. When I can afford a change, I'm glad to have it."

"Friends the same as carpets," Thomas thought with a little bitterness, for which he at once reproached himself. For, after all, Persis' friendship had been stanch and steadfast till his own confession had disclosed his unworthiness. He atoned for his momentary lapse by making her a substantial discount on the linoleum she wanted for the kitchen.

The seal of silence Joel had placed upon his lips was broken when the question of engaging a servant girl came to the fore. "Ain't you going to leave yourself nothing to do?" he demanded wildly. Then with a cunning for which few would have given him credit. "You'll get as fat as Etta West sitting around all day and being waited on."

Persis listened unmoved, her rather enigmatic smile suggesting that she clearly foresaw a way out of that difficulty.

"I'm not afraid but what I can find enough to keep me busy. Besides, I need a servant girl to look after things when I'm away."

"Away? Are you going away?"

"I'm going whenever I happen to feel like it. And the first time'll be next week, Monday."

"Persis, where are you going?"

"To the city for a week or so."

Joel deliberated. He rose and paced the room, halting at length in a dramatic posture, face to face with his sister.

"Persis, I've got no love for the city as you well know. As the poet says, 'God the first garden made and the first city, Cain.' But I'm ready to sacrifice myself for what's best for you. I'll go along."

Persis regarded him without any indication of fervent gratitude for the sacrifice so nobly announced.

"It's good of you, Joel, but it won't be necessary."

He waved her protest away with a dominating gesture.

"It *is* necessary. It won't do to turn a woman like you loose in a city like Boston. As long as you didn't have any money, it wasn't so much matter. But now there'll be folks to sell you gold bricks, and when you unwrap 'em, they won't be nothing but plain ordinary bricks after all."

"They can't sell me bricks if I won't buy 'em, Joel."

"You don't know what they can do. You never went up against a professional sharper. Women ain't any match for that kind. They'll probably give me a bed at the hotel that hasn't been used since some time last winter, but never mind. I'm going along to protect you."

"Joel!" Persis' tone for all its gentleness showed plenty of decision. "Thank you, but this time I don't want you."

"What's that?"

"Some other time when you feel like running up to the city for a few days, we'll go together. But just now I've got some business to attend to."

"You mean I'd be in the way?"

"Yes."

"Persis." Joel spoke in heart-broken accents. "I guess the Good Book ain't far wrong in calling money the root of all evil. Up till you come into this property, you was all a man could ask for in a sister." Like many another, Joel found his blessings brightest in retrospect. "But now you're as set as a post and as stubborn as a mule. It's pretty dangerous, Persis, when a woman gets the idea she knows all that's worth knowing. As the poet says, 'A little learning is a dangerous thing.' I feel in my bones that there's trouble coming out of this wild-goose chase of yours."

It was not characteristic of Joel to keep his grievances secret. Wherever he went for the next few days, he fairly oozed reproach and resentment. And on the Monday when Persis took the ten o'clock train for Boston it was generally understood that she had declined the pleasure of her brother's company and was bent on an errand whose nature she alone knew.

"She'll put up at a hotel, I suppose," said Mrs. Hornblower. "She'll have to, for there's nobody in Boston she knows well enough to visit. A single woman staying alone at a hotel sounds dreadful improper to me. Robert would never allow me to do such a thing, never for a minute. And nobody even knows what she's gone for."

But Annabel Sinclair thought she knew. "I shouldn't wonder," she told Diantha, "if when Persis Dale gets back we'd see startling changes."

Her confidential tone was balm to Diantha's spirit. For since the daughter's sudden leap into maturity, the relations between the two had been strained, the instinct of sex rivalry overmastering such shadowy maternal impulses as had outlived Diantha's babyhood. The girl responded eagerly to the advance.

"Yes, I shouldn't wonder if she'd have lots of new clothes."

"She'll need more than clothes to make her presentable, and she knows it, too." Annabel's voice was rasping. "They have beauty shops in the cities, you know, where they fix over old women who want to look young, skin off the wrinkles and all sorts of things." She flashed a glance at the mirror—there was always a mirror convenient in the Sinclair establishment—and smiled with malicious enjoyment. Annabel did not need skinning.

Diantha edged away with sudden distaste. "I don't think Miss Persis would do anything like that, mamma."

"Why not?" Her mother spoke fiercely. "It's the sensible thing to do when you need it. After her good looks are gone, there's nothing left for a woman." The bitterness of a participant in a losing fight flung a black shadow across her fairness. For defy Time as she would, the day must come when he would triumph. She looked again at herself in the mirror as if already he had stolen the bloom from her cheek and the gold from her hair and shuddered at the thought of what must be.

Persis had said to her brother that she might be away a week. On the sixth day came a brief note to the effect that her business was not quite finished and that she would let him know when to expect her. Another week went by, and one afternoon Joel received his first telegram.

He stood staring at the sinister brown envelope with its black lettering, and a chilly fear clutched his heart. One catastrophe after another suggested itself, each to be discarded in favor of another more appalling. Persis had lost her money. She had met with an accident. She was dead. His bony hand shook till the envelope rattled, and the small boy who had brought the message eyed him with curiosity.

"Any answer?"

The question was reassuring. It suggested that Persis was still to be reached by mundane means of communication. Joel regarded the lad appealingly.

"Say, son, do you know what's in this?"

"Naw!" The boy's tone showed impatience tinged with contempt. "Why don't you look and see for yourself?"

The suggestion seemed reasonable, and Joel followed it. The typewritten enclosure blurred before his eyes, and so strong is the force of apprehension that he seemed to see words of ominous import staring up at him through the confusion. Then the mist cleared and his forebodings with it.

"Home on four-twenty train not necessary to meet me tell Mary to have plenty for supper.

"Persis Dale."

Joel felt the sense of grievance which is the almost inevitable sequel to groundless fears. "There's no answer," he told the boy gruffly. The urchin sidled away and Joel stood rigid, regarding the slip in his hand. His first move was to count the words. Seventeen! Joel groaned. What extravagance. If she had said "unnecessary" instead of "not necessary" there would have been a saving of one to begin with. And the closing injunction might have been omitted altogether. "Tell Mary to have plenty for supper." What an extraordinary request to telegraph from the city of Boston. Could it be that in the metropolis of New England she had lacked for food to satisfy the pangs of appetite?

So absorbed did he become in attempting to solve the riddle that he almost forgot to impart the contents of the telegram to Mary. The fresh-colored farmer's daughter who had found life extremely monotonous without the vivacious presence of her mistress, heard the news with elation and showed no surprise over the concluding request.

"I've heard how they feed folks in them city places. Ma's cousin was a waiter in a Boston boarding house once, and she says she was fairly ashamed to set before folks the little dabs that was served out, for all the world like samples. I guess after two whole weeks of that kind of food, Miss Dale's good and hungry."

Joel noticed with irritation that Persis had carried her independence to the point of suggesting that it was not necessary for him to meet her, though she was well aware that his presence at the station when the four-twenty train came in, had taken on almost the sacredness of a religious rite. "Looks as if she wasn't in any dreadful hurry to see me," Joel mused. It occurred to him that it would be a fitting return for Persis' perverseness for him to retire to his room and refuse to leave except at her humble and reiterated entreaty. It is unfortunate that so often the course of conduct consistent with one's dignity involves a painful sacrifice. As train-time drew near, Joel realized that he would not be equal to the ordeal of absenting himself, even for so worthy a cause as to teach Persis a much needed lesson.

There was the usual number of loungers on the station platform, and Joel was soon surrounded by an interested circle. As the brother of a woman of property, he had acquired a certain vicarious importance in the last few weeks. Information as to what Persis was doing, or about to do, was sought eagerly in all directions, and Joel's vanity was flattered at finding himself the center of attention, even though in his heart he was well aware of the reason.

"Sister having a good time up to Boston?" inquired a florid man who despite the chilliness of the late fall day was in his shirt-sleeves.

The uncertainty in Joel's mind as to whether Persis had spent her time attending the theatre or in the surgical ward of a hospital, caused him to evade a direct answer.

"Oh, so-so. I'm expecting her home on this train."

The countenances of the group brightened. Some of them had come a long distance to await the four-twenty train. Pressing work was on the consciences of several. It was agreeable to know that their sacrifices were not thrown away. They would see Persis Dale step off the train and would be able to tell their wives at supper whether, as far as their obtuse masculine powers of observation had been able to determine, she was arrayed in the spoils of city shops.

The train screamed at the crossing half a mile below and made its appearance with the usual accompaniments of smoke and rattle. Passengers looked with weary interest at the crowd on the platform, and the crowd on the platform watched eagerly for alighting passengers. A farmer living in the vicinity left the smoking car to be given scant welcome, for the lookers-on were anticipating something more impressive. A fat old woman with a basket and a couple of shawl straps was also coldly received. Then some one caught Joel's arm with an exclamation, muffled but profane.

There was a parlor car at the rear of the train, a concession to the passengers for Montreal. From this a rather striking procession was descending. It was led by a dark handsome boy about twelve years of age, while a fair girl, a little younger, followed behind. Another boy and then another girl, smaller and chubbier than their predecessors, were next to receive the assistance of the obsequious porter. And lastly he gave his attention to a woman who carried a baby in her arms. The woman wore a hat and coat new to Clematis, but there was something not unfamiliar in her erect carriage, and the capable fashion in which she directed the movements of her little flock.

"Straight ahead, children. Algie, you walk right toward that hack with the two gray horses, and the rest of you follow Algie. Well, here's Uncle Joel come to meet us."

Some one pushed Joel forward. With his jaw dropping and his eyes protruding, he looked like a criminal urged on

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Meeting the Demand for More Food Production

By A. E. GRANTHAM

AT no time in the history of the country have the farmers been called upon to meet such a demand for food as now confronts us. It appears that there is not only a temporary shortage of food stuffs, but, through a combination of conditions which are world-wide in extent, the stocks of available food products are far from normal. This indicates that prices for farm products will continue at an advanced figure for some time. Furthermore, it should be the patriotic duty of every American farmer to use every means available to increase the output of his farm. The high prices of grain used directly for human food should not overshadow the desirability of growing and providing for as many meat animals as possible. There are many ways of substituting for a part of the grain ration, other cheaper products which will greatly lessen the cost of production. It is the purpose of this article to offer suggestions which may be of service in planning for the maximum output of crops.

CORN.

At this time the acreage of corn has peen planned for and planted in most cases. It should be remembered, however, that south of the latitude of Baltimore corn may be planted as late as the 20th of June and produce a paying crop. Of course, local or early maturing varieties should be used. Where Crimson clover has been cut for hay or seed, or where an old strawberry bed has been plowed down the land may yet be planted to corn. It is wise to give corn a large share of attention, since it can be grown by rather extensive methods, almost entirely by machinery. It should also be borne in mind that corn is both a grain and a forage crop, the stover forming a large part of the feeding value of the crop. Corn is likewise convertible. It may be sold as grain or fed to live stock, thus opening wider opportunities than most crops in the manner of disposal.

New Jersey Boys Have Been Released from School and are Giving Valuable Assistance on the Truck Farms

The corn that is already planted should be carefully harrowed with a spike-tooth harrow just as it begins to appear through the ground. A weeder will serve the same purpose on a light soil. This early working of the corn is beneficial in several ways. It breaks the crust of the surface soil and enables the corn to come through more readily if the weather is dry; it destroys countless weeds that are just beginning to show, and allows the corn to get sufficiently large to be readily worked by a cultivator without danger of covering the plants. These are seeming small details but are of much importance if the maximum yield of grain is to be secured. Early and careful cultivation will do much to rid the land of weeds which lessen the yield seriously on many farms each year. The working of the corn after each heavy shower not only keeps down the weeds, but conserves moisture. The old saying that tillage is manure is not far from correct in that frequent working of the corn will result in increased yields.

It is a common practice in the East to plant several kernels of corn per hill in order to provide for losses by insects, birds, etc. This is a good thing provided the hills are properly thinned before the corn gets over nine inches in height. If the weaker stalks are removed and the remaining stalks not seriously disturbed by the operation, the selective method of securing a stand will be found profitable.

SOY BEANS AND COWPEAS.

There is yet ample time to make plantings of soy beans and cowpeas. Not only are these crops of great feeding value for stock both as hay and grain, but the seeds may be used as human food. Soy beans have been successfully canned during the past year and undoubtedly the demand for beans for canning will grow. The soy bean will produce double the yield of the White Navy or soup bean now commonly used and with less risk from disease and damage in harvesting The soy bean will produce from 20 to 28 bushels of seed per acre, while the ordinary field or soup bean will average from 15 to 20. While the seed of both cowpeas and soy beans is rather high in price at this time the general value of these products both as hay and grain makes it desirable to grow as large an acreage of such crops as possible. The culture of soy beans and cowpeas is essentially the same. If the plantings are made by the 20th of June in the latitude of Philadelphia or southward, these legumes will mature seed. If for any reason the seeding must be delayed somewhat, the crops may be cut for hay without impairing the value of the products. Both peas and beans may be seeded by either of two methods, the first by drilling in rows 30 to 36 inches apart and cultivating two or three times as in the case of corn, or sowing solid with a corn drill as oats and wheat are seeded. By the former method one-third to one-half bushel of seed is required per acre. If seeded solid six pecks of peas or beans are necessary per acre. It is desirable that the land be thoroughly prepared before seeding, in order that the beans may germinate quickly and grow rapidly enough to outstrip any weeds which may appear. This is particularly true where the beans are seeded solid. Under good conditions a yield of 2½ tons of soy bean hay and 1½ to 2 tons of cowpea hay may be obtained from an acre.

The right amount of fertilizer should be considered in planting these crops, as they draw rather heavily on the mineral plant food in the soil. Under present fertilizer conditions acid phosphate is about the only fertilizer that can be profitably used. If the land has been in sod recently and has had an application of stable manure, the use of 250 pounds of acid phosphate per acre would give good results. Where the beans or peas are being grown for the first time care should be taken to inoculate the soil either with commercial culture or with soil that has been taken from a field where the legumes were successfully grown the preceding season. Soy bean hay is almost equal to alfalfa hay as a ration for dairy animals. Even though dairying is not a general enterprise on the farm it will be well to grow one of these legumes in order to balance the corn stover and carbonaceous feeds now so generally used.

FIELD OR SOUP BEANS.

There is yet time to plant field beans, such as are used for baked dishes and for canning with pork. The unusually high prices for beans should encourage a larger acreage of this crop. Almost any well drained land that will grow corn will produce a paying yield of beans. The soil should be well prepared and fertilized with an application of about 300 pounds per acre of a 2-10 mixture. In case the land has received manure for the previous crop, acid phosphate alone will give good results. It is better to apply the fertilizer before planting, or allow it to feed into the soil from the grain drill sprouts adjacent to the seed delivery tubes. This in case the ordinary grain drill is used.

The beans are planted in rows 24 to 36 inches apart with the seeds 3 to 5 inches apart in the rows. A bushel of beans will plant two or three acres. Care should be taken not to plant the beans too deep, especially if the soil is a rather heavy clay and inclined to pack after a rain. For this reason a single-disk grain drill is one of the best machines to use, since it does not pack the soil above the seed. Beans may be planted as late as July 1st and mature before frost, in the latitude south of Philadelphia. The varieties most commonly used are the Navy or Boston Pea bean and the Marrowfat. The latter is much the larger bean and will require more seed per acre. The cost of seed is unusually high this year and it should be ordered at once.

As soon as the beans are through the ground, a weeder may be used astride each row, taking out one tooth of the weeder for the row. Later cultivate as corn, but do not stir the soil when the beans are wet with dew or rain, as this may induce the spread of disease. Be sure that the seed is free from disease as indicated by a clear white appearance. As soon as the pods reach half size cultivation may be discontinued.

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TIGHT BINDING

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.

EDWARD T. WALKER, Managing Editor
THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS
W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE
F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES
J. C. Billingslea, 119-123 W. Madison St., Chicago.
708 Kresge Bldg., Detroit, Mich.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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JUNE 1, 1917

Selective Conscription

THE call has come. June 5th is the day selected when the manhood of America will step forward to "do its bit" in bringing about a lasting peace, which we hope for all time to come will prevent a repetition of this dreadful war Times have changed since our forefathers left their plows to fight the enemy. They formed an army to meet and overcome an army. We must mold our nation to meet and overcome a nation which for a generation has been preparing and now for nearly three years has been working as one unit and able to withstand her less prepared and organized opponents. It is because the farmer must not leave his plow nor the mechanic his shop in too great numbers that the selective draft was passed by Congress.

England has already dearly learned her lesson that not everybody can grow the food to keep armies in the field and workers well fed. She early sent to the front the big country youths when it was found that as a class they were taller than the city men and compared better with the big German soldiers. This and her long time policy of neglecting agriculture, thinking that her mighty navy would always guarantee plenty of food supplies, has placed England in her trying position of today. She for one is looking to America with hungry eyes and we must not fail her.

What the future holds for us we cannot tell. Undoubtedly sacrifices of men and money must both be made. In the homes of the ten million who come within the present conscription age limits, the grim reality of it all must today be apparent. One thing we can be thankful for—that we need not make costly blunders and needless sacrifice of human lives if we will only take the advice of our allies who have gone through the thickest of the fighting.

The Liberty Loan

OPPORTUNITY is said to knock at least once at every man's door. It stands without now in the form of the "Liberty Loan." It is the opportunity to show out of what kind of stuff we are made. For a hundred and forty years we have been a free people, free to go and come as we would, and free to develop a virgin continent. That we have amassed great wealth in doing this is known to all peoples of the world; especially have we prospered for the past three years while our present allies have done their best to stave off the conditions with which we are now confronted.

The "Liberty Loan" will only pay back a small part of our debts. It is to be devoted to establishing liberty in Europe and on the high seas. Loans to our allies are one of the best uses to which the money can be placed. With their experience in spending the huge sums they have been called upon to raise to perfect their organizations, they are in a position to get one hundred cents worth of value out of every dollar spent. They will also spend and use the money for things which if they did not do we would be called upon to do. Here at home each dollar spent acts as a safeguard in protecting the boys who go to the front, and plenty of money when needed will go a long way toward shortening the conflict.

Aside from the patriotic duty of subscribing to the "Liberty Loan" the merely practical can see in it a good investment for surplus funds. The bonds will be issued in denominations of $50, $100, $500 and $1000 and will bear 3½ per cent. interest. This rate is not remarkably high, but it is absolutely safe, as the security is the faith and honor of the United States backed by all of the resources of the nation and the American people. Should the United States during the continuance of this war be compelled to issue bonds bearing a higher rate of interest, holders of these liberty bonds have the right to exchange them dollar for dollar for bonds bearing the higher rate of interest. The liberty bonds are non-taxable except for inheritance tax, which applies to all kinds of property. Your postmaster can furnish you with the necessary blanks for making application for this loan if there is no bank in your vicinity. If you believe that each of us should stand by our own country and can do it in no other way, do not miss the opportunity of buying a liberty bond.

Another Word on an Old Subject

ONE of our contributors to a recent Woman's Exchange topic said: "The way to keep the boys and girls on the farm is to have the parents prosperous." We have been wondering if it isn't often true that the parents are prosperous because the boy and girl stayed on the farm, and something deeper than prosperity has held them. It seems to us that it is partnership that counts more than anything else. Letter heads which come to our desk printed "John Jones & Son" carry with them the spirit of co-operation which is back of every successful movement. Making it worth while for the boy or girl to stay at home is what counts in the long run. We don't believe they all should remain at home, but those who do, we think, should have as nearly equal advantages as possible to those who seek other avenues for their life work. When they are old enough to set out for themselves their services at home are surely worth as much as it would be necessary to pay strangers to do the same work. Taking them into the farm organization as the business man takes a partner, giving them responsibilities and a fair share of the profits go a long way toward solving this problem. The farm home which this year has a contented family circle bothers little with the labor question. How much easier it is, too, for mother to work for her boys and girls than for strangers, who often fail to appreciate what she does for them.

The Vital Importance of Potatoes

WITHOUT her potatoes it is hardly possible that Germany could have reached and held the position which she has today. In 1913 Dr. Karl Helfferich, at present finance minister of Germany and vice-chancellor, estimated that the per capita per annum consumption of potatoes in that country was 1293 pounds; in other words, a little more than one pound for each person three times each day. The total crop for 1913 has been estimated at more than 54,000,000 tons, which allowed plenty for cattle and swine feed and other uses than food. Since that date production has fallen off somewhat, but Germany will still stand or fall by her potato crop.

We farmers of America this year have been advised by everybody to plant potatoes and a great many more than usual have been planted. Up to May 14th shipments from Florida amounted to the equivalent of 3,295 cars, or over twice as many as were shipped to the corresponding date last year, while last year the jobbing price was about $5 a barrel less than it is now. Even at the high prices which prevail every large city reports an unusually strong demand..

A great many of us have this year's crop planted, while in other sections there is still time to plant and raise a good crop. All of us should take special pains that we get the greatest return possible; fertilization, cultivation and spraying make the difference between a bumper and a "bum" crop, and any of us still have time to put in practice all three. It is now a common remark that every potato produced before next winter will be more effective than a bullet in our and our allies' cause.

There is a possibility this year of a new development in the potato industry in this country. Potato drying plants, which cost comparatively little, are being talked of, and they would have a wonderful effect in steadying the market. It is possible for the dryer to become to the potato what the cannery is to the tomato. In 1909 Germany is said to have had 170 factories drying potatoes, while in 1911 the number had been increased to 327. The product of a dryer is said to resemble corn flakes and can be turned almost instantaneously into mashed potatoes.

Haven't You Some Grist to Grind?

WONDER how big a book it would make if we attempted to put into it what all of our readers know? It would be a big one without a doubt, even if we put in only the different things which all of us know. You surely have found out something about farm problems and farm life which deserves wider distribution than you can ever hope to express in spoken words. Maybe the man in the next county or next state is just looking for what you can tell him. Don't tell us you can't "write" because you have never studied the art through a journalistic correspondence school, or learned it yourself like Benjamin Franklin did, by merely sticking at it. We don't care a bit about the style you may use in expressing your ideas, and as for our rules we can say, as one of our contemporaries recently did, "You can write on three sides of the paper, spell by ear, punctuate according to the dictates of your own conscience and your article will be acceptable if you really say something."

We cannot think of a time when there has been so many things to write about as there are today. Farm life is now more complex than ever before, with tractors, trucks, automobiles, light, heat and water systems, engines, improved roads, church, community and Grange problems, endless labor saving tools and equipment for the home, barn and field besides the centuries old problems of proper care for the stock and crops. Surely you have met and solved satisfactorily some of these things and it might be that your ideas on the subject would be of untold value to the man who has not gone as far along the "journey" as you have. The day, we think, has passed when all ideas found in farm papers are classed as "book farming" and thought to be of little value. Men have always taken at their face value the ideas expressed over the "line fence" or at the shop or store. The only difference in seeing or having it expressed in print is that the line fences become state boundaries and the audience increases from seven or eight to seventy or eighty thousand. Not all of that number, possibly, can profitably employ the idea expressed, but its usefulness is vastly increased because among the great number who read it surely some will make good use of it.

Apropos of this matter of readers' contributions Bradford, the famous humorist of the Philadelphia North American, says:

"The mill will never grind the grist
Unless the water flows,
The grist comes in from everywhere
And—goodness only knows!
The miller at the hopper stands—
A hammer in his fist;
(I think it's YOU he's knocking now—
For sending him no GRIST!)"

Bulletin Helps for Farmers

The 1916 year book of the U. S. Department of Agriculture is now ready for distribution. It contains 783 pages and like its predecessors is filled with valuable information. Besides the annual report of the Secretary of Agriculture and 200 pages of statistics it has 32 articles on various agricultural subjects written by the experts in the department. While the supply of these books is limited, a request to your Senator or Congressman at Washington is all that is necessary to obtain a copy.

"Steer Feeding Experiments" is the title of Bulletin 145 recently issued by the Pennsylvania State College. It covers the experimental work done for three years at the college along this line and is valuable to any one who is interested in beef cattle. A free copy can be had by addressing Agricultural Experiment Station, State College, Pa.

Every Pennsylvania poultry raiser should have a copy of Bulletin No. 219, entitled, "Increasing the Winter Yield of Eggs." It is a complete 114-page treatise on this subject written by W. Theo. Wittman, and is issued by the Pennsylvania Department of Agriculture. The third and revised edition is now ready and will be mailed free to residents of the state by addressing the department at Harrisburg.

Some Road Building Ideas

HARRY GOUGH

A good many of the country roads all over the United States are in very bad condition. While the state and the county do considerable to keep up the roads, their work is done principally upon the main highways. The up-keep of the less important side roads falls largely upon the farmers in the vicinity.

The state and county highway departments usually employ experienced road contractors for their share of the work and many of these men understand and employ modern methods. The average farmer, however, makes very hard work of road repairs. If these men would learn to use dynamite, the roads of the country would be much better and the farmers would save a lot of time and money as well as hard work.

Recently Mr. I. S. Brooks, of the Deere Farm, wanted to improve his roads. He knew that I was a practical stump blaster and asked me to help him on the job. The first task we tackled was the making of a ditch along the side of one of the roads. There were a number of stumps to dispose of and the ground was very dry and hard. Mr. Brooks first marked off the line where he wanted the ditch to run. Down this line with a steel bar and maul, I drove a row of holes about 3 feet deep and 5 feet apart. These holes were loaded with some 25 per cent. strength dynamite, fitted with blasting cap and a length of fuse. Most men do not know how to do this work, so I will explain it briefly. The handle of every cap crimper is pointed. With this a hole is jabbed into the side of the stick of dynamite, starting at a point about 1½ inches from one end. The hole runs diagonally down into the dynamite, the business end of the cap pointing downward toward the center of the cartridge. A No. 6 blasting cap is nearly 2 inches long. The holes should be deep enough to entirely bury the cap in the dynamite. The end of a piece of fuse is inserted into the top of the cap and crimped on tight with a cap crimper. A piece of string is then tied around the cartridge and the fuse to prevent the cap from pulling out. The cartridges, after thus being primed, are pushed firmly to the bottom of the bore hole with a wooden stick, some loose earth, free from pebbles, is placed on top of the charge and pressed down lightly until about 6 inches cover it. Then more earth is run into the hole until it is filled to the top. This is pressed down firmly so that the tamping is tight.

The end of the fuse protruding from the hole is split about a quarter of an inch down. When lighting the fuse, the end of the match should be jabbed into this opened end of the fuse while the sulphur is still white hot. Better still, use a piece of punk for lighting. It takes about a minute for 3 feet of fuse to burn down to the charge. This gave me plenty of time to light eight charges and get away to a safe distance before the first charge went off. These charges loosened up the ground nicely and broke off the roots that were in the way of the plows. It was a very easy matter to do the plowing after that.

After making the ditch along the new road we cut a new road through a section where there were a good many stumps and some wet spots. My work was to remove the stumps and cut a ditch to drain off the surplus water.

The stumps were mostly oaks 8 to 10 inches in diameter. For stumps with spreading lateral roots, I placed my charges deep in the ground as nearly as possible directly under the center of the stump. For the white oaks with tap roots, I ran my bore hole down alongside the tap root, loading the charge directly up against it. From a half to three-quarters of a pound of dynamite were used on these stumps. I would load the charges under four or five of them at a time, then blast them.

In making the ditch we first cut the bushes and small growth, then staked out our line. A row of holes was punched down this line. My blasting machine was a small one that would fire but ten holes at a time. I therefore loaded the ditch in 10-hole sections, blasting in that way about 20 feet at a time. Five pounds of 25 per cent. strength dynamite and 10 electric blasting caps were sufficient to blast each 20-foot section. The loading of these holes was very easily and quickly done, the wet ground was soft and the holes could be made by using a pointed bar. The charges of dynamite were simply pushed into the bottom of the holes. No tamping was necessary, as the holes filled with water and water makes the best kind of tamping. My bore holes were all put down about 32 inches deep. My punch bar was marked so as to get the depth of the holes uniform. This is necessary in order to get a ditch of uniform depth.

It is necessary to know what charges to use to lift the dirt cleanly out of a ditch. If the charges are too small, you get merely a mound of loose earth instead of a ditch. This dirt afterwards has to be shoveled out. The best way to determine the charges is to try two or three test sections, using different loadings until the proper quantities are determined.

(Concluded on page 220)

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Garden Notes for June

W. F. MASSEY

Do Your Bit

We old fellows who are past our fighting days should each one do something to help in the feeding of the world at war. In Pennsylvania and northward we can grow more beans than we need green, and gather the ripe ones for winter store. Just now is the best time to plant beans of any sort. Of the White Kidney beans the variety known as the Michign Wonder is claimed to be the most productive. The Pea bean or Navy bean is one of the most popular, and the Red Kidney bean is now largely canned like the ordinary baked beans. And vacant spots after lettuce, radishes, or any other of the very early crops, can be used to grow beans for winter and at the same time keep up the succession of green beans for the table. Then the old Dutch Case Knife bean can be planted in the corn hills and let run on the corn and will make one of the best white dry beans.

The Late Irish Potato Crop

According to latitude and climate, from early June to early July is the time to plant the late crop for winter. One difficulty is that fewer seed potatoes have been put into cold storage than usual, and seedsmen are taking orders in advance for these and asking a deposit of $2 a barrel before delivery. But every effort should be made to increase the potato crop. In the South a second crop can be made from the early crop seed, but the older seed, kept in cold storage, is better. In the growing of the late crop we have conditions very different from those in which the early crop was planted, and we need to observe different methods of cultivation. With the early crop we need to take advantage of the increasing warmth by hilling the rows. With the late crop the important matter is to conserve moisture and to get the potatoes deeper in the soil. Therefore I have found it best to make deep furrows by running the plow twice in the rows and then after planting to cover the potatoes lightly until they start, work the soil to them as they grow until level and cultivate shallow and level to prevent loss of moisture. Hilled up by the plow at this season would dry out the soil rapidly and would be an injury to the crop. Maintaining a dust blanket on the soil in the dry and hot weather will do more for the crop than hilling. Fertilize liberally in the furrows and spray with Bordeaux mixture to ward off the late blight.

Beans and Peas for the South

A Southern subscriber asks what is the best white dried bean to grow in the South. Better leave the White Kidney and Navy beans to the North, for while they may grow in the South, they will not make the crop they do in the North, and what are gotten will be full of weevils and unsaleable. The best table bean in the South is the large early White Black Eye pea of the cowpea class. For the cowpeas are more beans than peas, and this Black Eye pea is, to my taste, a better table vegetable than the Navy beans. Made into soup or baked like the white beans the Black Eye is excellent, and has a flavor of its own that makes it entirely different from the white beans. It always brings a better price than other varieties of the cowpeas. Early June is the best time to plant them. Then there is another of this class, a very small pea or bean nearly white, which is excellent and more productive than the large White Black Eye. This is commonly known as Lady pea, and in the far South as the Argentine pea, indicating that it may have come from South America. This pea grows more rankly than the Black Eye, in fact, making quite a tangled mass, while the Black Eye grows like an ordinary string bean plant. This will suit some tastes better than the Black Eye.

The Winter Cabbage Crop

Here I sow seed the last of June for plants to set later for heading in November, generally using a good strain of the Late Flat Dutch cabbage. Northward the first of the month will be better. The seedbed will be better screened with cheesecloth against insects and kept well supplied with water. Good cabbage heads are the result of good rapid cultivation and a strong soil heavily manured, for the cabbage plant is a gross feeder. Side applications of nitrate of soda will push them along rapidly and the more rapidly they grow the less damage the green worms will be able to do. But of course the worms must be fought. Air-slaked lime with some salt sprinkled over the plants will have a good effect. Lead arsenate, one pound in 30 gallons of water, is good until the plants begin to head. After that I would not use the poison. Washing the plant with soapsuds from the weekly family wash, using a watering can and sprinkler, will keep down the worms and will help the cabbages to grow.

It Looks Like Good Prices for Strawberries This Year. Lucky is the Man Who Has a Good Patch in Bearing

Cucumbers, Cantaloupes and Squashes

A lady asks whether cucumbers and cantaloupes will cross, for she finds that her old gardener has planted them very close together. The various genera of the cucurbitaceae cross much less than is popularly supposed. Species of plants in the same genus will readily cross, but in any family of plants it has always been found difficult or impossible to get genera to cross. I have for years planted cucumbers and cantaloupes side by side and have always had pure cantaloupes and pure cucumbers. The squashes, gourds and pumpkins will cross with each other easily. Last year I had cucumbers and summer squashes side by side. Now I have a large number of volunteer plants growing where they grew last year. These I am hoeing out into rows and will let them grow, and if there was any crossing it will show this summer. It seems a little odd that we have been entirely unable to get a stand of cucumbers and melons this cold spring, the volunteers from seed that has been lying in the ground all winter have developed the rough leaf. I hardly think that it is practicable to cross cucumbers and melons, squashes and cucumbers, or cantaloupes with watermelons. Any of these now growing will be greatly helped by a small amount, say a tablespoonful, of nitrate of soda scattered around but not touching the plants.

Sweet Corn

Here I find that to keep a regular supply of roasting ears it is well to plant every two weeks until middle of July, and in the northern part of our territory the corn can be planted till the first of July. For all plantings after the first and second I use Stowell's Evergreen and Country Gentleman, never planting less than three rows at once so as to insure pollenation. A row of the Fordhook bush lima bean can be planted between the corn rows and after the ears are used the corn is pulled up and the beans have more favorable conditions. In the field one can plant beans to run on the corn, but in garden work we cannot afford to keep stalks after the ears are gathered.

Hiding Things

A compost pile is a necessary thing for a garden, but one does no like to have it conspicuous. I plant tall sunflowers and castor beans around my pile and they make a very pretty screen and it takes them a very little while to hide the compost pile.

Egg Plants

The first of June is early enough to set these tender plants, especially in so backward a season as the present. I grow these entirely in pots and by June they are large plants in 4-inch pots, with leaves as large as my hand. Knocked out of these pots the ball of earth is planted whole and the plants hardly know they have been moved. The Colorado beetles are as bad on eggplants as they are on potatoes, and the plants suffer at times from leaf blight. Therefore spraying is important. Spray with Bordeaux mixture in which 1½ pounds of lead arsenate are mixed to 50 gallons of Bordeaux. Hand picking of the old beetle is also useful.

Strawberries are attacked by leaf rollers, weevils, cut-worms, white grubs and leaf spots. No remedy for white grubs but hand destruction. Plant only on soil cultivated the previous season and change locations of beds at least every three years. Leaf rollers, weevils and leaf spots are generally held in check by combined arsenate of lead and Bordeaux mixture applied once a week during early growing season. Kill cut-worms with poisoned bran mash. Inspect new berry plants before setting, for root aphis, easily controlled by dipping roots in nicotine solution of strong tobacco decoction.

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Late Hatching Counts This Year

F. V. L. TURNER

If the evidence were necessary we could pile up stacks of it to show that this country next year will witness a greater dearth in poultry, and its products, than can appear on the surface. To overcome this condition for the sake of profit is the duty of every poultry keeper with a square foot of ground that can be devoted to increases in the number of chickens, ducks, geese, turkeys or guineas.

When poultry is spoken of all figures come from the last census, and every counted fowl was listed from farms only—the backyard hordes, the millions of birds on plants under three acres in extent, or lower in value than $300, were not listed by the numerators; since every farm can devote more space to poultry (and never feel it) there is no real reason why a few more hens should not be set or why the incubator should not be refilled.

June hatched chicks are not regarded favorably by a majority of poultry raisers; chief among the reasons for the objection to them is the additional labor, small though it really is, necessary to bring them to rapid maturity, rapid as compared to the speed at which earlier hatched chicks, left to their own resources to a great extent, develop. Devoting a little more time and attention to the late hatched chick will bring about maturity quicker than the go-as-you-please method of handling young stock on the average farm.

To begin with, the June-hatched chick needs, more than any other attention, a little more shade until it is six weeks old. Like all in nature the greater growth is made in the early spring, a veritable "tempering of the winds to the shorn" when the mild and equable sunshine is most lavish in its life-giving heat and less severe in its destructive fieryness, when the tenderness, delicacy and succulent palatability of plant and insect life is at its height. But to change these things to the needs of each season's second or later generation of animal life because of man's necessity is the object, and a successful adjustment of nature must be brought about as it has been for so many years by those seeking greater profit.

Let me tell you of my own experiences since I have been literally dumped into the narrow confines of a suburban town, where the neighbor uses a shotgun to protect himself and his garden against my chickens and lets his cat steal my downy mites, unable to protect themselves.

In the cold, bleak days of early spring I do not hatch; I wait until the sun has some warmth. My old turkey hen always brings forth one lot of chicks, and a hen or two others. The yard and house for these youngsters is small, so small that I often wonder how I do it, or, rather, why the old turkey doesn't rebel. The hens I set at about the same time as the turkey is given her eggs. On the first day of May I started them off and the turkey will get the whole bunch of youngsters as fast as they hatch, a week, even, seeming to make no difference to the old turk between her own brood and the introduction of her industrious hen helper's young.

A store box was, five years ago, converted into a shed-roof-shaped house, just big enough for turk to turn around in. This is her home and she likes it. For shade there is an improvised tent of old bags, a piece of canvas and the side of the big hen house when the sun is the other way.

For insect life the cultivation of my garden furnished the worms, both angle and cut-worms, and the green food comes from the back or front lawn, the green refuse from the kitchen or lettuce, beet or other vegetable matter from the garden. Religiously we provide cool drinking water, not once, but several times a day.

From morn till night until they are three weeks old, these youngsters eat one of the many good ready mixed chick foods, a laying mash being gradually worked in from the eighteenth day, by the twenty-fifth day the chick food has been working out of the ration and the chick grain is eliminated at six weeks of age. A regular scratch grain is then fed three times daily while the laying mash is before the flock all of the time. Oyster shell, charcoal and grit are a constant feature, of course. From the end of June to November 15th is a short time, four and a half months, in which to put on the final touches to prospective layers; perhaps it is, but remember the average chicken lays at six months and late May hatched are just that old. Just here comes the whole kernel from the nut—advance the date thirty days and we automatically postpone the laying date; but, and herein lies the secret of profit, we are going to get just as much out of December eggs as we did out of November eggs, this coming winter, and the cockerels that come along with the pullets will bring mighty good prices as fryers, better money as capons or will decidedly relieve the strain and drain on our resources. And my, how these pullets will lay all next spring and summer! For every late hatched chick you fail to get out in June you deliberately spell a preventable loss.

A little extra shade, clean, cool drinking water, green food, short, very short range, great care in feeding table refuse and closer observation will work into money a good sized flock of June hatched chicks. They are worth while for home use; they produce a profit any way you figure it and this coming winter will make us all look a dollar a long time in the face before parting with it. Twenty pullets to lay eggs next November or December and twenty young cockerels to sell or eat will help hold the purse strings tighter when this land of plenty faces scarcity.

June eggs are always fertile and good hatches are generally secured. Try it out once—the loss can be but little and the "big chance" is all in your favor.

How to Get Rid of Mites in Poultry Houses

Lice by day and mites by night furnish the unhappy condition of poultry kept under insanitary surroundings. Treatments for lice are not effective for mites because the latter work only at night, making raids on the fowls from their hiding places in crevices of the roosts and cracks of the building. To destroy mites and keep the flock free of their depredations, insecticide sprays and a sanitary building are necessary. Men in the Bureau of Entomology, U. S. Department of Agriculture, who are giving this subject careful study, recently told how a complete renovation can be done.

The presence of mites is indicated by small black and white specks on the roosts—the excrement of these insects. The first step is to get rid of the hiding places so far as possible. The roosts should be taken down and all unnecessary boards and boxes removed. In heavily infested houses the mites are to be found in all parts of the building, including the roof. Where they are less numerous the infestations usually are confined to the roosts and nests and the walls immediately adjacent. For small coops a hand atomizer will suffice for applying insecticides as sprays, but for larger houses a bucket pump, knapsack sprayer, or barrel pump is desirable. A rather coarse spray should be applied from all angles and thoroughly driven into the cracks. The floor also should be treated, as many mites fall to the floor when the roosts are being removed.

Of the several materials that have proved effective, one of the so-called wood preservers, consisting of certain coal tar products, known as anthracene oil, with zinc chlorid added, has given particularly good results. Its repelling power lasts for months. The cost is about $1 a gallon, but twice the quantity may be obtained by reducing with equal parts of kerosene.

Crude petroleum is almost as effective, retains its killing power for several weeks, and in most localities is very cheap. It will spray better if thinned with one part of kerosene to four parts of crude oil.

Both of these materials often contain foreign particles which should be strained out before spraying is begun. It has been found that one thorough application of either of these materials will completely eradicate the mites from an infested chicken house, but ordinarily it is advisable to make a second application a month after the first, and in some cases a third treatment is required. These subsequent applications may be made with a brush, using the materials pure and covering only the roosts, their supports, the walls adjoining, and the nests if they are infested. This method of application is effective for the first treatment also if the houses are not heavily infested. Poultry should be kept out of the treated buildings until the material is well dried into the wood.

Sour Skimmed Milk for Chicks

Sour skimmed milk fed to chicks, besides having a most favorable effect on growth, lessens the mortality from all causes, especially from diarrhœa. The poultry department of the New Jersey Agricultural Experiment Station advises that it should be kept before the chicks from the start until they go on range. Fountains should be thoroughly cleaned once a day.

The value of sour skimmed milk as an agent to decrease mortality probably lies in the lactic acid which it contains, as this tends to make the chicks resistant to disease, while its food value lies in the natural constituents of the milk.

June Hints for Poultry Raisers

Sour milk is valuable in any ration.

Summer shade insures thrifty chicks.

Remove over-active cockerels to a separate yard.

Clean up the incubator, remove the lamp, and throw away the wick.

Soft fresh dirt is an insurance against leg weakness in chicks.

Add to the grain feeds with a mixture such as bran, shorts and corn meal.

Do not keep unnecessary male birds. An extra hen eats no more and may lay eggs.

When range is limited spade up the runs or move the brood coop a short distance daily.

Spoiled or decaying flesh, if eaten, will surely cause limber neck. Burn or bury the dead.

Watch for head lice on the chicks. If found, rub top of head with a small piece of lard free from salt.

Avoid crowding by keeping in small flocks and by providing roomy coops. Thin out if there are too many.

Clean fresh water lessens disease. Filthy drinking water is the source of much trouble. Clean the drinking pans frequently.

If hens are lousy rub a piece of blue ointment the size of a pea into the skin just beneath the vent and on the under side of the wings.

All these methods have been found successful by the Missouri College of Agriculture, where they are used and recommended by H. L. Kempster.

Report of Cold Storage Eggs.

Why poultry writers and breeders advocate this year hatching and raising all chickens possible is clearly shown by a statement issued May 8th by the United States Department of Agriculture: Reports from 350 cold storages show that their rooms May 1st contain 1,845,117 cases of eggs while on April 1st, 350 storages reported 174,500 cases. The 288 storages that reported holdings on May 1st of this year and last show a present stock of 1,739,692 cases as compared with 2,327,174 cases last year, a decrease of 587,482 cases, or 25.2 per cent.

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TIFFANY'S Superior Chicks That Live silver, White and Columbian Wyandottes, S. C. R. I. Reds, $18.00 per 100; $165 per 1000. Pekin and Rouen ducklings, 30 cents each; $25 per 100. Catalogue. Aldham Poultry Farm, R. 35, Phoenixville, Pa.

QUALITY CHICKS Rocks and Reds, 14c. Anconas and Black Leghorns 13c., White Leghorns 11c. Satisfaction guaranteed. Circular. Delivery each week. E. B. Hummer & Co., R.D.B., Frenchtown, N. J.

EGGS, 15, $1.00; 30, $2.00. Thoroughbred Rocks, Wyandottes, Reds, Hamburgs, Leghorns, 19 varieties. Also Brahmas, Orpingtons, Houdans, Campines. 35th year. Catalogue. S. K. MOHN, COMPERSBURG, PA.

Buff, White Leghorns, S. C. R. I. Reds. Eggs 9c per 15; $1.50 per 50; $4.00 per 100. S. C. Black Minorcas, Mottled Anconas $1.00 per 15; $1.75 per 30; $5.00 per 100. Catalogue free. JOHN A. BURR, Quakertown, Pa.

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OUR EXPERIENCE POOL

We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1221, JUNE 15.—What are you planning to sow for a cover crop at the last working of the corn? How much seed do you use per acre and how do you sow it? Does it make enough growth to pasture when the corn is cut? Did you ever get a field into sod this way? How many times have you cultivated your corn?

TOPIC No. 1222, JULY 1.—Tell us your experience with late summer seeding of alfalfa. How did you prepare the land? What form of inoculation did you use? How much and what kind of lime did you apply? How much seed did you plant per acre? What do you consider the essentials for success?

TOPIC No. 1223, JULY 15.—What plan have you found best for filling the silo? Do you have your own outfit, co-operate with neighbors or hire a traveling one? How many men do you use and how do you place them? Tell us any good ideas you have found in doing this work.

G. H. D., Meetze, Va.—At present I have adequate barn room so that I can store my small grain under roof as soon as it is in shape to be moved from the field. The past two seasons I have lost money, due to the fact that I tried to thresh from the shock and had to wait so long for threshing outfits which violated their agreements with me relative to the time when they would thresh my grain. That is one reason why I provided a surplus of mow room in a new barn which I recently built.

I prefer to shock wheat in the field for a few days before storing it in the barn, in order that it may dry out and cure and make a good quality of grain. In my section it costs from 1½ to 2 cents per bushel more to thresh from the stack than from the shock, but the improved quality of the grain will more than pay the difference. Threshing from the shock is advisable only where a reliable threshing outfit positively will be available when the farmer is ready for it. By storing my grain in the barn I can thresh when I please, at a time when plenty of labor is available and other work is not pressing.

With five horses to a 7-foot-cut binder and the fields fairly level I can cut from 17 to 20 acres of wheat a day where the grain makes a good crop. By shifting the horses about and putting in a fresh team at noon and by working a long day I can average better than 20 acres in a time of emergency, but such high-pressure work is hard on both men and horses. In my section the grain crops per farm are not large enough to justify the use of a gasoline tractor, although a small engine on a binder to operate the machine and to lighten the work of the horses has occasionally been used to good effect.

The cost of caps and the extra labor involved in placing them over the shocks is more than repaid in the grain which is saved during rainy seasons where the crop is handled in the shock until threshing time. However, I question the economy in using caps where the grain is shocked only temporarily until it is fit to be hauled to the barns. Of course, where the farmer already has the caps on hand this method may be justified, but if he has to purchase them the cost will exceed the value of these extra precautions. I like to shock wheat after the bundles have dried out on the ground for a while in long, narrow shocks which better favor the circulation of air and the rapid curing of the grain. These shocks should be well capped and the caps should be replaced after every windstorm, while the shocks which tend to lean or fall should be rebuilt. If the shocks leak or take water they should be pulled to pieces and rebuilt only after all the bundles have thoroughly dried out. During the current season more than ever before, the American farmer should exert himself to save all of his wheat, not only because the price of the grain will be high at harvest time, but also because the problem of producing the bulk of the world's bread supply devolves on him.

E. A. W., Street, Md.—I have hauled wheat direct to barn as fast as cut, have shocked it for a few days—or weeks in unfavorable weather—and have stacked it in the field. When circumstances permit I prefer the first mentioned method, because it eliminates the danger of being caught in a storm; but the grain must be more completely ripe for this method and may shake out a little bit more in handling, though there is a difference of opinion even as to that.

I have never used covers over shocks, but suppose they would be all right except for the first cost and the time required, and I imagine this would fully equal any loss from doing without them.

We have not used a tractor to pull binder, but I know men who find them very satisfactory for this purpose, especially when the surface is dry and hard and the heat would force teams to rest often. With us the acreage per day depends on the heat, on whether the surface is soft or solid, and on whether fields in wheat are hilly or level, rough or smooth, and runs all the way from 5 to 12 acres for three horses abreast to binder. We find three abreast much more economical in every way than four in string. Of course, when the acreage is large we find it necessary to begin cutting before grain is ripe enough to go into mows, and that means shocking the first field until it is well dried out. When I shock wheat I set the sheaves in rows two by two, with heads pressed together; in this way the air penetrates freely and the grain will soon dry out, after a shower, without injury, though after a heavy rain each sheaf should be stood alone for the sun and air to get at it. Very little rain will spoil wheat if not thoroughly dried before put into mows or stacks.

S. M. T., Chester, Pa.—When wheat is ready to cut we drop all our other work and stay with that job until it is finished. If the weather seems settled we shock the wheat immediately after it is cut and allow it to dry a few days before threshing. If dull weather seems likely we rush it into the barn as soon as the butts of the sheaves have dried out enough.

We have used a tractor for pulling the binder very successfully on level ground. It gives a steady, even pull and can stand the hot afternoon sun much better than the horses. It requires a man on the binder to run the bundle carrier and watch the knotter, but last year we put a 10-year-old boy on the binder and he did the work very well. We had some difficulty in turning the corners, but by keeping them rounded rather than square it was possible for the tractor to keep going continuously. The tractor is much slower in getting over the ground than the horses, but taking all together give us the tractor for this heavy work. We do not cap the wheat shocks except with a couple of sheaves bent and sort of folded over the top of the shock; if these are properly made and put on the grain will stay dry during the most unfavorable weather. If a heavy rain comes it may be necessary to set out the shocks so as to have them dry for threshing or hauling to the barn or stack.

E. J. J., State College, Pa.—When cutting wheat I always shock it, and just as soon as it is dry enough I haul it into the barn. With wheat, more than almost any other crop, it undoubtedly pays to "make hay while the sun shines." Every moment of good weather should be taken advantage of, and the farmer should not be afraid to pay his men for working overtime at this season, nor should he be unwilling to overstep the "eight-hour" law himself. Action during this season is most vitally important, and all that I have ever relied on to get the crop under cover.

The amount cut in a day depends entirely on the condition of the wheat, size of field, and lay of the land, but we average 10 or 12 acres a day under favorable conditions. I have never used a tractor or engine to haul the binder but think it would be a good proposition. I have firm faith that in the future every farmer who has a farm of fair size will use a tractor and that it will revolutionize farming. I have had no experience with putting covers over shocks and feel that it would be impracticable with a large crop.

H. F. J., McCune, Kan.—Here in Kansas when cutting wheat we hitch four good horses to our binder and hire a couple of good men to shock, if we don't have boys to do it. Then we get into the field as soon as the dew is off. We generally arrange to have two sets of horses. About 10.30 we change teams; no stopping for dinner (that is, the machine). We change horses again at 3 and keep them going until dark, thereby cutting 20 to 24 acres per day. In muddy weather we put a gasoline engine on the back of the binder, and in extremely muddy times we fix a beer keg under the machine for a roller, which keeps it above ground, and the engine cuts the grain, while the horses furnish the traction. There are a few tractors in the county but I have never seen one pulling a binder, but we will get to that in a few years, when the war kills our horses all off. As to putting covers on our shocks, that is all unnecessary in this section if the wheat is cut at the proper time and set up right. We always put two cap sheaves on the shock and then if we have a wind strong enough to blow some of them off we go over the field and replace them, which is seldom a very big job. I have had wheat shocked that stood for a month and took several heavy rains without doing any damage at all. But we most always either stack or thresh out of the shock as soon as all in the neighborhood are through cutting.

A. O. S., Moorestown, N. J.—Last year we cut 67 acres of wheat on the farm with two binders with three horses on each binder. We had three teams hauling it to the barn as fast as it was cut. We lapped one-half over as we mowed it in and when we threshed it the middle of September it was very tough and lots of the wheat was left in the straw and chaff. I prefer to shock wheat in the field long enough to cure and then either thresh at once or put in barn. I do not like covers if the weather is fair, as they keep the sun and air from the wheat and it does not cure well. If the wheat is to be left long in the field then covers are very nice, as they not only keep the wheat from getting wet and sprouting, but keep the straw nice and bright, which must be done if it is to be sold. We work our straw all up in manure.

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Why not make your farm labor profitable and help feed our Armies in the field and in the factory?

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Sizes	Price	Sizes	Price
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32x3½	8.00	35x4½	11.50
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30x3½	5.50	34x4½	8.00
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Send for descriptive circular and price list. Good territory open for agents.

FOXES Wanted 100 young REDS. Will pay $3 each and Express charges. ROSS BROWN, McFALLS, ALABAMA

CASH FOR YOUR OLD RUBBER, METALS AND RAGS. SEND FOR PRICES. Hudson Supply & Mfg. Co., Bayonne, N. J.

More Food Production

(Concluded from page 211)

MILLET.

In the case of a shortage of the hay crop on the farm it would be well to provide to meet this emergency by growing a small acreage of millet. While it is not the equal of soy beans or cow peas for hay, it may be seeded somewhat later and with less expense per acre for seed and fertilizer. Fox tail millet makes a hay that is about equal in feeding value to timothy hay. It may be fed with satisfactory results if a little care is taken to mix it with other roughage. Millet must not be regarded as a profitable crop under ordinary conditions, but should be looked upon merely as an emergency crop to tide over a shortage in hay. It is not well to seed millet before the land becomes thoroughly warmed, as the plant grows too slowly in cool weather to compete with the weeds. Millet grows well on a variety of soils, but succeeds better on a sandy loam. As the seed is small the ground should be well prepared. The seed is usually sown broadcast and harrowed under, although it may be seeded with a corn drill. Two to four pecks of seed are used per acre. The crop is ready to cut for hay in from 6 to 10 weeks after planting, depending on the season, variety and fertility of the soil. The best crop of hay is obtained when the crop is cut about the time the plants are in bloom. If the seed is allowed to form there is a decrease in the palatability and there is some danger in feeding the hay to horses.

BUCKWHEAT.

Buckwheat is another crop that may be seeded rather late in the season and on land that can not be utilized earlier to advantage on account of the pressure of work. Under favorable conditions buckwheat will make a crop of seed in 8 or 10 weeks. This makes it the shortest season cereal crop. Buckwheat is at its best on a sandy loam, although a crop may possibly be grown on land too poor for corn. It is a practice among farmers of southern Delaware and Maryland to seed buckwheat along with Crimson clover. In this way a moderate yield of buckwheat is secured and at the same time a good stand of Crimson clover is established. Under these conditions the rate of seeding is less than where the buckwheat is grown alone. A rather general preparation of the soil is desirable for the best results with buckwheat. Likewise, it is a good plan to use a moderate amount of fertilizer on most soils. The usual amount of seed varies from 3 to 4 pecks per acre. Where clover is seeded with the buckwheat only 2 or 3 pecks are used. At present buckwheat is selling for almost twice the usual price.

BALANCE BETWEEN CROPS AND LIVE STOCK.

In order to provide for the maintenance of soil fertility, for fall pasture and for early spring forage crops it is well to plan for catch crops during the next two months. If the corn is not to be followed by wheat it should be seeded down to crimson clover at the rate of 15 pounds per acre at the last cultivation. Where crimson clover will not endure the winter rye and vetch may be substituted for the summer seeding. This will give excellent fall pasture and enable the farmer to carry more stock early in the spring. If it is possible to plow the land under after wheat and oats have been removed a crop of cowpea hay or soy bean hay can be produced before frost. This will apply to localities south of the latitude of Baltimore. Serious attention should be given to the growing of as many forage crops as possible to the end that more stock may be kept on the farm. The present shortage in the food supply will have the tendency to cause many to sell off their live stock because the price of grain is so high. With more legumes and catch crops it will be possible to not only maintain the present amount of stock more economically, but increase the carrying capacity of the farm for live stock. The real conservation of the balance between crops and live stock is more necessary at this time than ever before. This is essential if the productive capacity of the farm is to be kept at a high level.

Cowpea and Sorghum Hay

G. H. DACY.

A mixture of one and one-half bushels of cowpeas and one peck of sorghum last year made me as high as five tons of cured hay per acre. I sowed this rush order hay crop the last of May and harvested it late in September. After the crop had wilted thoroughly in the swath and windrow I cocked the hay in small shocks containing about 150 to 200 pounds of hay per shock. I left the hay in the shock for about two weeks, when it was thoroughly cured and ready for barning.

I sold this crop of hay for $16 per ton and yet was able to feed it on the home farm. During the early spring I contracted with a local live stock dealer to feed ninety steers until grass was available. In this way I marketed my surplus corn, fodder and hay at top prices and still gained the fertility revenue from the feeding of these crops on the farm whereon they were produced. My experience makes me enthusiastic about cowpeas and sorghum as a quick order hay crop which will yield well and produce a nutritious roughage of high feeding value both for cattle, dairy cows, young stock and horses.

Virginia.

Ditching Through Ironstone

H. L. BLOW.

The use of dynamite for ditching is new in this section of the country, but for the benefit of others who may not have tried it, I submit this description of a ditch I recently blasted for Thomas Johnson, of Hornerstown.

He had spent the entire previous winter picking a ditch through some ironstone and said he didn't care to repeat the experiment. He wanted to lay a line of tiles diagonally across a corn field and asked me to make him a price on loosening up the ironstone with dynamite so that it could be shoveled out without hard picking. I quoted him a price of 35 cents per hole, based upon the use of one pound of 60 per cent. dynamite in holes 2 feet deep and 2 feet apart with an electric blasting cap in each hole.

I found after making a few test shots, however, that I could greatly cheapen the work by using quarter-pound charges of 20 per cent. dynamite loaded in holes one foot deep and 4 feet apart, using a blasting cap and 2 feet of fuse in each hole. The cost of the completed ditch was $6.30.

This blasting broke up the ironstone so that it could be shoveled out just like soft dirt. To put down the bore holes a foot deep it had been necessary to use a pointed steel bar and sledge hammer. After the blasting it was possible to run a hoe handle down into the ground 3 feet without any difficulty.

This experiment convinced Mr. Johnson that he could use a 20-acre field for planting rye if the soil all over it were similarly broken up and he engaged me to do this work.

New Jersey.

A holder for your cow's tail. Page 223. —Adv.

More Hay Profit

YOU men whose haystacks loom up like the everlasting hills, or whose hay mows are crammed jam full of fragrant fodder—do you know of the extra hay profit that lies in the line of **International** hay presses? Hay, in the smooth, uniform bales turned out by an **International** baler, brings market prices enough higher to allow a good profit on the work of baling. Baled hay can be shipped quickly to points where prices are highest. And an **International** hay press gives you these advantages at a cost hardly worth mentioning.

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is open to you—to every farmer or farmer's son who is anxious to establish for himself a happy home and prosperity. Canada's hearty invitation this year is more attractive than ever. Wheat is much higher but her fertile farm land just as cheap, and in the provinces of Manitoba, Saskatchewan and Alberta

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The excellent grasses, full of nutrition, are the only food required either for beef or dairy purposes. Good schools, churches, markets convenient, climate excellent. There is now an unusual demand for farm laborers to replace the many young men who have volunteered for service in the war. Write for literature and particulars as to reduced railway rates to Supt of Immigration, Ottawa Can., or to **F. A. HARRISON**
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WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

JUNE 15.—How do you dispose of the spring cockerels? Do you sell all your males or take them away from the hens now that the hatching season is over? What is the best way to kill a chicken? Do you make any use of the feathers? Tell us of any other way you begin about this time to reap the reward of early hatching.

JULY 1.—We hear a lot said about canning, but what about making jelly? Tell us in not more than 250 words how you make the jelly which your family seems to like best. What sized jelly glasses do you find best and how do you cover them?

JULY 15.—What are you doing toward making an exhibit of "women's work" at the fair this year? Tell us in not more than 250 words what steps you take to win, what you make, what kind of containers you use and how you arrange it to present the most attractive appearance.

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

Home Canning

SWEET POTATOES.

Mrs. D. L. T., Fine Creek Mills, Va.—For home canning I prefer glass jars, because if all the contents of a jar are not used at one time, what is left can with safety be left in the jar. I can tomatoes whole; some are prepared for soup, and to some I add sugar corn and lima beans, thus making a ready prepared stock. I also can snaps, sugar corn, sweet potatoes and all of the berries and fruit available.

Last year was the first time I canned sweet potatoes, and I found them delicious, so I will give my way of doing them.

I boiled them in the usual way until done, then I peeled and sliced the large ones and left the smaller ones whole. After doing this I packed them carefully in sterilized jars of the wire clamp type, put into each quart half a teacupful of sugar, filled the jar brimming full with cold water, adjusted the rubber, put the cap on and adjusted the wire over the cap, leaving the wire that seals it loose. The jars were then placed in a boiler on a cloth which was laid on a framework of slats fitted in the bottom of the boiler (any housekeeper can make this of thin pieces of wood in a few minutes). The boiler was then filled up to the necks of the jars with cold water and all brought to a boil, and kept boiling for 1½ hours. Then I sealed the jars and took them out of the water and covered them to protect them from drafts until cool.

SWISS CHARD.

Miss I. E. B., Franklinville, N. Y.—As there are six grown persons and usually one or two men hired by the month, besides day hands at times, we consume quite a quantity of fruit and vegetables. We can about 200 quarts each year. Of this about 50 quarts are pickles and vegetable salad; 50 quarts green corn, string beans, tomatoes, Swiss chard and sometimes green peas; the other 100 quarts are fruit. We do not use tin cans, as we prefer glass, for if there is any fruit left in the jar one can set it away till the next meal and there will be no danger from poisoning because it has been left in the can. We think fruit and vegetables keep their natural flavor better in glass than in tin cans.

Swiss chard makes splendid greens, and as our family is fond of greens, and they are so healthful, we can some of it for winter use. We can the whole leaf (midrib and all), washing them through two waters and cooking them in plenty of water with two tablespoonfuls of salt to an 8-quart kettle of greens. (Do not use iron, as it makes them dark colored.) Cook them till partly tender, seal up in jars hot, with plenty of the water they were cooked in. We can string beans the same way, cutting them into half-inch pieces and cooking with a little more salt.

TOMATOES.

Mrs. J. C. H., Fisherville, Va.—For canning I prefer glass jars for looks and from an economical standpoint. I can beans, beets, cucumbers and tomatoes.

I have seven in family and find we can easily consume 100 quarts of tomatoes and other things in proportion. This is my prize winning method of canning tomatoes:

Select nice firm tomatoes of a size to go in the jars without breaking. Wash and drop in a skillet of boiling water a few at a time. As soon as the skin cracks they are ready to remove to a pan of cold water. Peel carefully; with a sharp-pointed paring knife remove core, being careful not to cut deep enough to let out seed. Place them in jars with the cores inside, one on each side, next on opposite side, alternating until the jar is full. Fill jar with cold water, drain off, then add one teaspoonful salt, one-half cup of sugar dissolved in a little water, fill up with cold water, screw lid on tight. Place a folded cloth in bottom of dinner pot, put in jar and fill up pot to neck of jar. Place over a quick fire; just as soon as water boils remove jar at once and seal again. Leaving them in too long will cause them to rise from the bottom.

Other vegetables have to be canned by a different process. I also can wax cherries, pears and peaches by this method when I want them extra nice.

Mrs. J. W., Cordova, Md.—For home canning I prefer the glass jars with the glass tops and wire fasteners, in processing vegetables, fruits, meats, and soups. From my garden I can string and lima beans, peas, tomatoes and beets. By writing or asking your Congressman at Washington you can get books on canning.

There are three in our family and I try to can from 250 to 300 quarts, as we find the fruit and vegetables are in great demand during the winter and spring.

I will give my method of canning tomatoes. I took first premium at Baltimore, Maryland Week Show in our Grange exhibit and third from the whole state in the sweepstakes prizes. First scald jar, cap and rubber, and never touch inside of jar or caps with fingers after this is done. This is important. Choose smooth, firm tomatoes and only scald long enough to remove skins without softening the tomatoes. Place jars on table and put as many tomatoes in as you can without breaking the flesh; then pour cold water in until the air bubbles are out, put in one level teaspoonful of salt to each quart, then put on rubber and top, shove first wire over top to hold it in place, don't fasten the other wire, but let loose; then place in boiler or tin lard can, or anything you can cover closely. Before placing jars in, have wooden rack for bottom, and don't let jars touch the sides or each other. Have cold water to shoulder of jars, set over good fire and put top on boiler. Allow them to stay in boiler 45 minutes, take out, fasten down wire and wrap in cloth. Be sure they don't leak around rubber. I think you will find them the best tomatoes you ever canned.

PEACHES.

X. Y. Z., Hartly, Del.—For home canning I always buy glass jars, and prefer the old-style Mason jar to any other at the same price. If a glass jar is well sterilized, good new rubbers used and your fruit in good condition when the jar is filled, your finished product is something to be proud of. My fruit cupboard is a very attractive place, with its rows of canned peaches, white and red cherries, berries of several varieties, pears, tomatoes and apples. I never put my vegetables in the same place with my fruit, as I think vegetables need a dark closet; the light seems to turn them dark. I use the syrup cans for string beans, but am very nervous about fruits and vegetables in tin.

My peaches are said to be delicious. I use medium size fruit, pretty well ripened; pare and throw into kettles of water until I have enough for ten or twelve jars; if pints are used then I aim to have enough for sixteen or eighteen jars. My jars, after having been washed, are well scalded, the rubbers adjusted and the fruit placed in, seed side down. The finished product looks better this way, and the jar holds more pieces. After they are all filled I pour over them a rich sugar syrup that has boiled for a very few minutes. Give that time to settle, then fill up again until the jars are running over. I then adjust the tops, screw them on tight, then turn back, half way around. The jars are then set in the steam cooker over the gasoline burner and are left there for half an hour; the heat is then turned off and jars taken out and tops tightened, after which they are left on a table upside down for 24 hours.

COWPEAS.

Mrs. S. M. J., Kentwood, La.—I use both glass jars and tin cans. The jars are much nicer for fruits, berries, jelly and preserves, while the cans are necessary for keeping meats, soups and most vegetables. I use a small canning outfit, out in the shade of the live oaks. But a wash boiler would do as well. Two wash tubs, one to fit inside the other, the inner one perforated to allow the water free circulation, are as satisfactory as many $10 outfits. An old cook stove makes an ideal furnace. I have about one gross of glass jars and nearly 1000 tin cans, and there is seldom a week I do not have something to put up. I begin with berries, asparagus, peas, beets and spinach. Many of these are used in time to refill with beans, peaches, tomatoes, okra, mangoes, cowpeas, etc. The last things of the season are fall apples and sweet potatoes, which I can during the winter months.

We have canned cowpeas for several seasons, both the white and colored varieties, and find them an excellent substitute for the high priced Navy beans. I gather when the pods are yellow, shell, pour into a flour sack, tie loosely, plunge in a vessel of boiling water to which one teaspoonful of baking soda to each gallon of water is added, let boil two minutes, remove and plunge peas in cold water. They are now ready to pack in the cans, cover with hot water, seal and process (boil under water) for three hours. The secret of success is the parboiling in soda water. The flour sack I use for convenience in handling. Salt, pepper and a slice of pork or bacon may be added to each can.

PUMPKIN.

Mrs. F. E. S., Grafton, O.—I prefer glass jars for canning, because of the economy, as they can be cleaned and used year after year with very little cost for rubbers, and those with glass lids are superior to the metal lids.

As to vegetables, I begin by canning asparagus and follow with peas, string beans, corn, beets, cucumbers, succotash and tomatoes. I can all with the steaming method except tomatoes, which I peel, core and let come to a boil for a few minutes, then put in sterilized jars and seal immediately.

We have a family of six, with some help, and we like at least 250 or 300 jars of vegetables, which materially lessens the high cost of living.

I have had unusual success in keeping pumpkin and never knew of any one else that used my method. I have used extracted honey quite extensively in canning fruit, and as I have never lost a jar with honey, I thought to experiment on pumpkin. I grind the pumpkin through the food chopper, using small knife, then add about one-third as much honey as ground pumpkin and cook about 20 or 30 minutes, stirring occasionally, then fill jar and seal. The pumpkin is sweetened when opened, and as fresh and toothsome as "When the frost is on the pumpkin and the fodder's in the shock."

STRING BEANS.

Mrs. G. D., Williamsport, Md.—We prefer glass jars for canning everything but tomatoes, because you can see if the fruit is keeping and the jars may be used year after year, while tin cans are spoiled easily and not fit to be used more than once.

Out of my garden I can beans, rhubarb, tomatoes, corn, cucumbers, beets and a great deal of fruit. There are five in my family and I can about 300 quarts all told. I will give my receipt for canning string beans:

String and cook beans until tender, then to each gallon of beans add 1 tablespoonful of salt and 1 teaspoonful of salicylic acid. Can in glass, seal and keep in a dark place. These are delicious used in winter or early spring, dressed with butter and cream.

GREENS.

Mrs. F. W., Springville, N. Y.—There are three of us in our family—my father, husband and myself. I have about 100 glass jars which I always fill with something. From our garden I can rhubarb (in cold water), tomatoes, string beans, strawberries, corn and greens. I must pass along my method of canning greens. I put up beet greens and Swiss chard for the first time last year, and they were, oh, so good! This year I have begun on cowslips.

I take a good sized square of cheesecloth, put the greens in it and place in a steamer over a kettle of boiling water and let them blanch for 15 or 20 minutes, then plunge into cold water, fill the jars with greens, adding a teaspoonful of salt to a quart; also a slice of bacon if I have it, if not, I leave it out, seal the top tight, then unscrew about half way (if wire clamp jars do not press down last clamp) and boil the jar 1½ hours, take out and tighten covers. If the jars are not full when they are taken from the boiler it does not matter, as the air that is in them is sterilized.

May I add this (to me) very helpful hint? If the can to be boiled is first placed in a sugar sack then dropped into the water it can be easily handled hot by using a fork as you would a clothes stick, sticking the tines into the sack first to prevent its slipping.

TOMATO SOUP.

Miss B. C. E., Cornwallville, N. Y.—For home canning we use glass jars. We can peas, string beans, whole tomatoes, tomato soup, corn and beans for succotash, and corn, besides the vegetables used as pickles. For our family of four, besides hired help by the day a part of the time during the summer, we can about 125 quarts.

One of the handiest things to have is tomato soup, as it takes only a few minutes to get it ready for the table. This is our receipt for it:

Remove skins from the tomatoes by having a kettle partly filled with boiling water, which is kept on the stove where it will keep boiling. Put tomatoes in a sieve with a handle and dip in the water two or three times. Put only one row in the sieve at a time and be sure the water covers the whole tomato when it is dipped. It takes only a few minutes to scald a large panful this way and the skins can easily be removed. Slice tomatoes and put in a kettle and cook without water, until soft enough to put through a sieve. Onion may be added if desired. Sieve and put pack over fire and cook away at least one-half. It must be cooked quite thick to keep, but thin enough to pour out of a bottle. Have bottles or cans thoroughly sterilized before filling with soup. Seal bottles by dipping in melted paraffine after putting in the corks. We use any size bottle, and it is handy to have different sizes according to the amount used at different times. This can also be used for sauce on baked beans, macaroni, etc., by seasoning to suit taste.

GREEN BEANS.

Mrs. M. M. C., McKees Rocks, Pa.—The glass jars are much to be preferred, as they do not cost any more, will last indefinitely and seldom anything ever spoils in the glass jars for us. From our own garden we can beans, corn, beets and tomatoes. Our family consists of my husband, hired man and myself. We can about 100 quarts of vegetables for home use each year, besides fruit and pickles.

In canning beans, gather them when young and tender, break in pieces and pack in jars. Put in a teaspoonful of salt for each jar and fill the jar with cold water. Place gum and lid on tight, put in a boiler having a rack in the bottom. Boil three hours, remove, tighten lids, putting on new rubbers if necessary. Let stand till cold and dip the tops of the jar in paraffine. These will keep perfectly.

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8310.—Ladies' blouse. Cut in sizes 34 to 42 inches bust measure. The blouse may be made in the 45-inch or 32-inch length.

8300.—Girls' dress. Cut in sizes 4 to 14 years. Sleeves may be long or short and the straight gathered skirt is cut in one piece.

8299.—Misses dress. Cut in sizes 16, 18 and 20 years. Long or short sleeves may be used and the plaited or gathered skirt may be used.

8292.—Girls' jumper dress. Cut in sizes 6 to 14 years. The dress closes at the back, has separate guimpe and a one-piece skirt.

8297.—Ladies' waist. Cut in sizes 36 to 44 inches bust measure. Long or short sleeves may be used.

8314.—Ladies' apron. Cut in sizes 36, 40 and 44 inches bust measure. The apron has side pockets and may be developed in linen or gingham.

8306.—Girls' dress. Cut in sizes 2 to 8 years. The dress may be made with or without the collar.

8285.—Ladies' skirt. Cut in sizes 24 to 34 inches waist measure. The skirt is cut in three gores.

8281.—Children's coat. Cut in sizes 2 to 10 years. The coat is in empire effect and has a one-piece gathered skirt.

8301.—Ladies' dress. Cut in sizes 34 to 40 inches bust measure. Long sleeves have deep cuffs and the skirt is cut in two pieces.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA

Other People's Business

(Continued from page 210)

toward the scaffold rather than a man of affectionate disposition welcoming home a family circle unexpectedly enlarged. The hoarse gurgle which escaped his lips might have passed for a greeting, or it might have presaged an epileptic seizure.

"Well, Joel." Persis nodded affably, at the same time patting the baby which, frightened by the proximity of so many strange faces, was beginning to whimper. "As long as you're here, you might as well see about our trunks. Give Uncle Joel the checks, Aigie. No, not that pocket. You put 'em in the right-hand one."

The crowd surged nearer and a piping voice made itself heard above the confusion. "Miss Dale, looks as if you was going to have lively times with all that company."

Persis cast a benignant gaze in the speaker's direction. She had never held curiosity in low esteem as do the more rigid moralists, acknowledging indeed, her full share of that characteristic. And moreover she was quite willing that her old friends and neighbors, the most of whom had congratulated her so heartily on her recent good fortune, should know of her latest acquisition.

"I guess we'll have a lively time all right, Mr. Jones, but these children ain't what you call company. I adopted the whole lot up to Boston, and every one of the five's a Dale, as hard and fast as the law can make 'em."

(Continued next issue.)

Don t Waste Your Time in Useless Fretting—Get Busy, 'Fore the Sun is Setting!

The food campaign has scared me cold. In every paper we are told to grow more crops, or, e'er we're old we'll all die young and turn to mold. They say the country's going to starve, there'll be no geese or ducks to carve; there'll be few spuds and not much corn, no wool for duds, and that the morn will see us all a-begging food unless we start to sawing wood. I lie awake all night and sweat; will summer be hot, cold, or wet; the seeds I plant won't grow, I bet, the corn will all by worms be et; the chix won't hatch, the hens won't set; and so I fuss and fume and fret. But what's the use of feeling blue when there is so much work to do. Dame Nature still is on the job to help to feed the hungry mob. She gives old Sol a hunch each day to keep him going on his way; and only asks that we make hay and be as happy as we may.—W. E. Vaplon, Colorado Agricultural College.

Canning Demonstrations

The home economics department of the Pennsylvania State College is planning a series of eight to ten canning demonstrations to be given in every county in the state that has a county extension representative. There are at this time forty-five such counties. Other counties will be added later. Requests for canning demonstrations from those counties that have no extension representative will also be taken care of, so far as possible.

In connection with the canning demonstrations there will be a discussion of drying as a means of food preservation and a discussion of the principles involved in planning meals.

Our Pennsylvania readers interested in canning demonstrations should write their county extension representative, in care of the Farm Bureau, for dates and places where these meetings will be held.

"No Empty Cans This Year"

The slogan in every home this year should be "no empty cans," urges the Pennsylvania State College. This will be especially necessary if there should be a shortage of tin and glass cans as has been predicted. Every homemaker should at this time take inventory of her supply of jars. She should know how many jars she has available, secure now a sufficient supply of rubbers, determine the condition of the tops of her Mason jars and order new ones if necessary. Odd sizes of jars and wide mouthed bottles may be used for jellies, jams and preserves.

Furthermore, every homemaker should estimate at once the number of jars she will use for fruit and for vegetables—what fruits and vegetables shall be dried or canned. She should remember to plan for the foods that have the proper food value and that meet the body needs in food requirements.

A minimum amount of pickles should be preserved and crocks or similar vessels should be utilized for the purpose. The food value of pickles is not high, and they are rather indigestible. Only enough should be put up to provide for a little variety and an occasional relish.

Those vegetables and fruits which lend themselves to drying should be especially considered.

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The Editor's Book Review

Below are comments on some of the more recent books which have come to the editor's desk from their publishers. The modern farmer is a reading farmer of course, and like other business men we believe our farmers are building up libraries by the occasional purchase of books on farm subjects in which they are interested; in no other way can a farmer improve so rapidly or substantially in his chosen calling as by reading the best in farm papers and books and preserving for reference the written accounts of the experiences of others.

For our readers convenience, we will be pleased to furnish at the publishers prices any of the books reviewed below, or any other obtainable books on farming. Further, we will be glad to give suggestions regarding books on any given farm subject on receipt of request with stamp for reply.—The Editor.

VEGETABLE GROWING, by Jesse George Boyle, Associate Professor of Horticulture, Purdue University. (Lea & Febiger, Philadelphia. 300 pages, 154 illustrations, $2.25 net.)

In answer to the call for increased food production for the home table and market, farmers, big and little, many of whom have not given this department of farming much attention heretofore, are turning to gardening in earnest this season. Here is a book calculated to be of unusual value to any one seeking concise and yet very complete information on any line of vegetable growing. This volume is written with the double object of helping those who seek to produce a supply of vegetables for the home table only and those who take up vegetable crops on a commercial scale. Starting with the locating and planning of the garden it takes up the seed supply, the tools, planting, cultivation, etc., in a most thorough and interesting manner.

ELEMENTARY AGRICULTURE, by Dr. J. S. Grim, of the Keystone State Normal School, Kutztown, Pa. (Allyn & Bacon, New York. Copiously illustrated, $1.25 net.)

In this volume the author aims to make country boys and girls love farm life, not only because this life is worthy and wholesome, but because farming, if directed by a trained mind, is a most interesting and profitable calling. It is broader in its scope than most books of this character designed as textbooks for high school and early college use, in that it goes into the social aspect of farm life and aims to correlate with farm life such related subjects as arithmetic, history, literature, geography and the sciences generally. This is a good book for any farm father or mother to place in the hands of their children, as well as a valuable textbook.

PRODUCTIVE DAIRYING, by R. M. Washburn, Professor of Dairy Husbandry, University of Minnesota. (J. B. Lippincott Co., Philadelphia. 432 pages, 131 illustrations, $1.75 net.)

This is the latest volume of Lippincott's well-know Farm Manual series, the earlier volumes of which series are already in the hands of many of our readers. This volume covers dairy breeds, the care and management of dairy cows, winter feeding, handling of milk and all of the aspects of dairying and the marketing of milk. Professor Washburn is a well known authority and this volume will prove valuable, either to the professional dairyman or the farmer who keeps a few dairy cows and wants to know how to increase their productiveness.

THE STANDARD ENCYCLOPEDIA OF HORTICULTURE, Edited by Prof. L. H. Bailey. (Macmillan Co., New York, six volumes, $36, sold by subscription only, now complete.)

We have several times referred to this valuable encyclopedia as its volumes have come from press. The work is now complete in six volumes and as the last volume has but recently come to our desk we cannot refrain from again commenting on the completeness and high value of this publication and expressing the hope that many of our readers will find a place for it in their farming libraries. No finer reference work on any branch of agricultural science has been issued than this. Professor Bailey, himself a most capable writer on a broad range of agricultural subjects, has called to his assistance foremost authorities in every department of horticulture, and the result is an encyclopedia that can be depended upon to furnish information on almost any conceivable subject in this line. The publishers have handled the work admirably—it is beautifully printed, very handsomely illustrated and substantially bound.

* * * * *

While this column is devoted for the most part to reviews of books on strictly agricultural subjects, it is our pleasure to mention several timely books concerning the great war, which have come to our desk from the publisher, E. P. Dutton & Co., New York.

GRAPES OF WRATH, by Boyd Cable. ($1.50 net.)

A most astonishing and absorbingly interesting book covering the experience of a British soldier during twenty-four hours of action at the front in France. It is the most intimate glimpse we have been given of the feelings and deeds of the common soldier in the midst of this the greatest war in the world's history. No one can lay this book down without the feeling that he has obtained a new insight into the reality of war.

IN THE CLAWS OF THE GERMAN EAGLE, by Albert Rhys Williams. ($1.50 net.)

A sketchy account of some of the adventures of a newspaper man at the front in Belgium in the early days of the war. The writer tries to be impartial and tells of incidents and events just as he saw them. Very readable.

THE CALL OF THE REPUBLIC, by Col. Jennings C. Wise. ($1 net.)

An argument in favor of universal military training for this country as the only safe solution for our present unprepared condition. The author is a graduate of the Virginia Military Institute, and has long been connected with that institution in various capacities. There is an introduction by General Leonard Wood.

What We Are Asked

Hulling Oats and Treating Apple Juice.—W. W., New York, asks us: "1. How can the husks be taken off oats on the farm so the grain can be ground for family use to make oat meal? I thought soaking them in warm water or steaming them and then slightly roasting them in an oven might do the trick. 2. How is sweet apple juice rectified with fish sounds? When is it put in the juice, before or after it has worked? How are the fish sounds prepared? How much is put in a 50-gallon barrel? Will it keep well if racked off, put into a clean barrel and filled to bung-hole? Can it be bottled?"

1. Oats are hulled by special machinery and it cannot be done on a small scale. 2. The only use of dried fish sounds in the apple juice would be to cause solid particles to settle. If the juice is properly filtered there will be no need for the sounds. The juice of any fruit is sterilized by heat before the fermentation begins. The juice is heated to about 180 and sealed in sterilized bottles. You could not keep the juice sweet in barrels, as there will be more or less air get in and start fermentation. The juice can be made effervescent by injecting carbonic acid gas. W. F. M.

Sweet Twist Tobacco.—D. K. J., West Virginia, wants to know a good receipt for making sweet twist tobacco.

The tobacco should be well cured and sweated before manufacturing it into sweet twist. It should be in good condition so far as moisture is concerned, in order to be pliable and easily handled. The main rib of the leaves should be removed and the leaves then padded and twisted into the usual shape of this kind of tobacco.

A mixture is usually made of molasses and honey which is thinned somewhat with water. The twists of tobacco are dipped into this solution and become pretty well saturated. The dipping process is repeated several times if the tobacco is to have a sweet flavor. The dipped twists are then packed into a tight box, or sometimes a keg, and pressed together very tightly. Sometimes pulverized licorice is dusted over the hands as the twists are packed in the container, and either brandy or whiskey may also be sprinkled on. The tobacco should be kept under pressure for some time and then it will be ready to chew. E. K. HIBSHMAN.

About Millet.—R. C. McW., Pennsylvania, asks us: "When is the best time to sow millet? How much seed per acre, soil preparation, and feeding value as roughage?"

Millet is a warm weather crop and should not be sown until the ground is warm. It can be sown as late as 60 to 70 days before the date of the first killing frost. From 25 to 30 pounds of seed (about 2 pecks) should be used. It is better to have a little too much seed rather than not enough, as it will crowd out the weeds and not allow the stalks to become too coarse. Millet seed is small and succeeds best in a carefully prepared seedbed. It will grow almost anywhere, but a rich, loose loamy soil is best. Can be successfully grown on sod ground plowed after harvest. As a roughage it is about equal to timothy hay, but a continuous use of it is not good for horses. T. H. W.

Some Road Building Ideas

(Concluded from page 213)

Electric blasting caps are fitted with two copper wires. They usually come in 4 and 6-foot lengths. The ends of these wires running from hole to hole must be connected. If they are too short to reach a piece of connecting wire, also of copper and proper length, is used to make the connections between them.

The wire leading to the blasting machine is a heavy insulated wire. It is duplex; that is, two pieces bound together by the insulation. It is advisable to have the connecting ends of the wires bright and clean so as to get first-class contact. The ends of the cap wires are connected to the two ends of the duplex leading wire which runs to the blasting machine about 250 feet distant. The leading wire should not be connected to the blasting machine, however, until the blaster is ready to fire.

This method of blasting gave us a nice large ditch about 3 feet deep and nearly 6 feet wide at the top. The ditch when finished was 270 feet long and but 55 pounds of dynamite and 110 electric blasting caps were used in making it. The total cost was $16.56.

Maryland.

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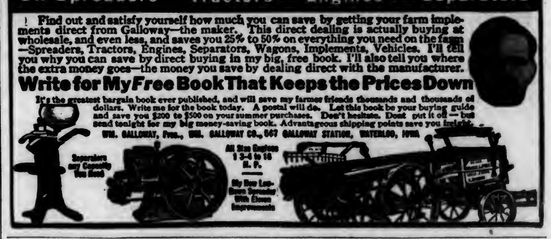

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The Practical Farmer Live Stock and Dairy Section

Dairying in the Old Dominion

M. T. MAHONEY

Virginia offers many opportunities to the prospective dairyman. Some of these are, viz., good markets, an ever increasing demand for dairy products, better prices than the average dairyman receives in the North and West, splendid railroad facilities, long grazing seasons and often cheap farms or soil which responds readily to good treatment. The same may be said of beef raising as a means of support. We have tried both. We raised large steers for years, but gradually drifted into the dairy business, and have discovered the latter pays us better, as it brings in a monthly income, which cannot be said of beef raising or many other lines of farming. Then when a cow ceases to be a good milker we can readily dispose of our big, fat Holsteins at beef prices. To begin with we had about 16 very good general purpose cows. These were a mixture of Jersey grades, Holstein grades and native cows or Durhams.

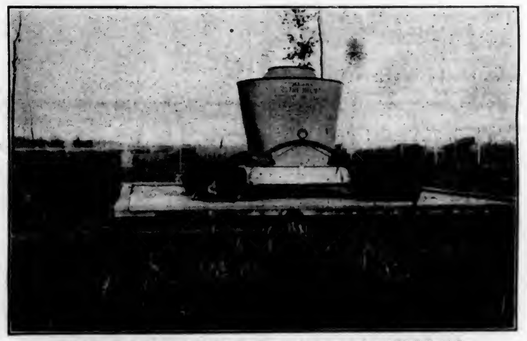
Our next step was to purchase a pure-bred sire and then we began weighing our milk night and morning and testing once a month to ascertain the per cent. of butter fat, which proved to be very interesting work. We soon discovered which cows were making good, and the heifer calves were kept from the best cows. A separator was purchased and we began shipping cream. Whenever a good cow could be bought we added her to the herd, so by the time our 30-cow barn was completed we had 26 cows.

Our dairy barn and milk house were built according to the most modern plans. The many conveniences these contain aids wonderfully in eliminating much hard work in connection with this industry, though we failed to include a mow in our barn to store straw, hay, etc. We were saving in cost at the time, yet considering the labor and time saved in a year by having our bedding and hay close, the cost would have been small in comparison. We shipped cream for two years; our cream checks usually averaged about $200 a month. Soon we added four pure-bred Holstein cows as a foundation for our future pure-bred herd. A number of male calves have been sold from these at good prices. There is a great demand for pure-bred live stock in the South. Now we have 11 pure-bred females on the place.

We have shipped milk for the past two years. For 1916 our milk checks averaged $475 a month. The manure made from our dairy is another important factor in connection with this work; last year we hauled out 400 loads. When engaged in beef raising we averaged 200 loads a year. I can safely say our crops have doubled in yield since we began dairying. We have a 15-acre field of alfalfa at present and aim to raise all feeds except cotton seed meal and bran.

Our calves are given whole milk for the first two weeks, then a gradual substitution of skim milk for whole milk is begun; we never make this change suddenly. When two or three weeks old they are given all the good, clean hay they will eat. This rough feed helps to develop the feeding capacity so essential in good cows. In handling our cows we have found kind treatment, comfortable quarters and regular hours add a whole lot to the profit. One hour is spent brushing the cows and washing their udders before milking; covered pails are used to milk in.

The amount of grain to feed each cow is a matter for the feeder himself to decide on, as so much depends on the ability of the cow to convert her food into milk, and then the price of milk must be considered. We obtain a good price for our milk, so aim to feed well and study the individuality of the cow instead of following a certain rule. Silage, with clover or alfalfa hay and corn stover, furnish the roughage. Our grain ration is composed of four parts of corn and cob meal plus two parts of cotton seed meal plus one part of wheat bran. All the silage that each cow will clean up is fed along with an average of 10 pounds of hay per day. Usually one pound of grain to every three or four pounds of milk is a safe rule to follow.



A Sanitary Water Fountain for the Hogs is Appreciated and Well Paid For

Dorset Horn Sheep.

M. A. COOPER.

The introduction of a new breed of sheep into a country becomes an event of considerable interest as the popularity of the special family spreads throughout a large area. An interest is also awakened in the minds of the people, and every event appertaining to their introduction and early history is sought after and read with a zest akin to that taken in local events of less magnitude. The bringing to notice of a new family of sheep in a country as diversified in its adaptability to the production of wool and mutton as the United States, must become a matter of interest to the student of sheep husbandry, as well as an incident in the general history of a country, that should be preserved for the information of those who, in after years, may desire to acquaint themselves with the circumstances connected with their introduction.

Dorset Horn sheep were first introduced into America by E. and A. Stanford, of Sternny, England, in the fall of 1885, who entered the port of Quebec, Canada, with 50 ewes and 6 rams. Mr. Burleigh, of Vermont, purchased a part of the first importation, and to him is due the credit of owning the first Dorset sheep ever brought to the United States. M. M. Small, Cooperstown, Pa., J. M. Ham, Washington Hollow, N. Y., and S. B. Griffin, Canton, Pa., were among the first owners of Dorset sheep in the United States, having purchased as early as 1887. September 13, 1889, T. S. Cooper, Coopersburg, Pa., made an importation from the flock of Henry Mayo. In 1890 and 1891 quite a number of importations were made and the breed had gained the confidence of the shepherds and after a lapse of five years there were known to be 88 flocks of pure-bred Dorsets in this country distributed over sixteen states. On March 31, 1891, a meeting of the breeders was held at Pittsburgh, Pa., and the Dorset Horn Sheep Breeders' Association of America was organized. During the first year of the organization 1035 certificates were issued and 38 breeders were admitted to membership. The membership of the Association for the past twenty-six years has been largely confined to the New England and Middle States.

Dorset Horn sheep lead all other old and improved breeds of English sheep in many respects. First, they are an old and well established breed; second, they have been so bred that ewes may be lined at any time, thus securing lambs at the season best suited to the pleasure or profits of individual breeders; third, they thrive in cold or temperate climates; fourth, they will produce more twin lambs, and more wool of fine quality than any other breed of mutton sheep. Lambs may be produced for market in December, January, or later, which, at from eight to ten weeks old, will weigh from 50 to 75 pounds. No farming can be more profitable than this at the present price of lambs in market.

Pennsylvania.

To increase the efficiency of labor on the farm more and larger horses in a team is one way. A little thought will show ways to hook two light tools together for use of one man.

Cheap Sheep Fences.

J. T. BARTLETT.

The old-fashioned sheep fence in New England is of brush—sometimes brush on wall—and is high. The new-fashioned sheep fence is the dog-proof, woven wire kind. Using either of these styles, the cost of labor and materials is such that it deters many from taking up sheep, which offer very attractive profit possibilities at present. For this reason interest attaches to the practical, cheap but efficient ways in which three New England farmers handled the fence problem when starting with sheep last season.

Farmer No. 1 is a dairyman, and pastures his cattle on several hundred acres, using a barbed wire fence of five strands. He turned his flock of 50 sheep in with the cattle. The sheep never got out, were not troubled by dogs and thrived.

Farmer No. 2 had a long, narrow pasture. On one long side of it was a river and on the other a railroad. The railroad ran a woven wire fence along its right of way. Seeing his opportunity, the farmer put in woven wire at the two short ends, and had a good, tight sheep pasture at a nominal cost.

Farmer No. 3 pastures sheep in an orchard, around which runs a stone wall. Placing fence posts inside the wall, he ran two strands of wire above the wall level and one strand below it. This fence gave entire satisfaction, and the cost he could easily afford.

A number of factors enter into the choice of a sheep fence, such as the amount of capital one has, the quality and extent of the pastureage, the amount of dog risk, and existing helps like stone walls. Considered apart from cost, woven wire, of course, makes the best fence, and in communities where dogs are numerous it is well nigh indispensable. In quite a percentage of our farming towns, however, there are no dangerous dogs, and where this is the case thrift and ingenuity will offset lack of capital. Farmers No. 1 and No. 3 mentioned above did not have to consider dogs in making plans. Their experience with sheep has encouraged them greatly, and they mean to increase their flocks as rapidly as they can.

New Hampshire.

Hogs on Pasture Require Some Grain

Hogs on pasture require grain for greatest profits in pork production, but a full feed is not economical when pasture is plentiful and grain high priced. When corn alone is fed a limited ration is considerably cheaper because the forage crop takes the place of much of the grain.

Hogs fed all the grain they would eat made more rapid but less economical gains in feeding tests at the Ohio Agricultural Experiment Station. They can be marketed sooner, however, which often is an advantage to farmers.

Some protein feed, such as tankage or skimmilk, is recommended to be fed in small quantity along with corn and pasture to pigs weighing less than 100 pounds. Pork production is usually too expensive when such feeds are given to large hogs, especially if they are on such

The Easton-Allentown Concrete Road in Pennsylvania gives farmers living near it a road that is serviceable at all times. Built by the State Highway Department. William D. Uhler, Chief Engineer, Harrisburg, Pa.

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pasture as alfalfa, clover, rape or soy beans, all of which are high in protein.

The swine department of the New Jersey Agricultural Experiment Station conducted feeding experiments during the season of 1916 with market pigs on forage crops. The figures from these experiments show that in order to produce a 200-pound market pig on alfalfa pasture, 290 pounds of corn, 20 pounds of wheat middlings and 12 pounds of tankage would produce 100 pounds of pork. Rape pasture required slightly less feed for 100 pounds of gain. After the pasture season was over the pigs were all fed in dry lot to finish out the weights. During this period, without the aid of forage crops the same pigs required 447 pounds of corn and 30 pounds of tankage to produce 100 pounds of gain. These figures speak for themselves as to the economy of forage crops as a supplement to grain rations for market pigs. The self-feeder supplied all grain to these pigs.

How to Produce Clean Milk

The way to produce clean milk, according to the authorities at Cornell University, is to see that care and cleanliness enter into every operation from the cow to the consumer. With warm weather coming and the present need of conserving every bit of our food supply, the dairymen of the college call renewed attention to the wastes which result from spoiled milk. It too often happens that during the summer months the milk producer may have two or three cans of milk which will turn sour and result practically in the loss of an entire shipment. This is especially true if the milk is being delivered to a milk shipping plant, which can handle only that milk which is salable in the open market. Under such circumstances the milk producer is scarcely ever in a position to manufacture the soured milk into dairy by-products, and about the only thing which can be done with it is to feed it to live stock. While this milk may be a good food for live stock, it is at the same time an expensive one.

Milk sours because of the entrance of bacteria. These bacteria are present nearly everywhere, as on dirty utensils, on the body of the cow, in the dust of the air, and on the clothes and hands of the milker. The length of time milk will keep before souring is influenced by the number of bacteria in it. If one is to produce clean milk it is necessary to have all of the milk utensils clean and as free as possible from bacteria. The pails, cans, strainers and other vessels and utensils should first be rinsed in cold or luke-warm water, then washed in warm water to which has been added some washing powder and finally scalded in boiling water. Most bacteria which ordinarily get into milk are killed by water which is near the boiling point. After scalding these utensils they should be kept in a clean place, where no dust can settle on them, because dust particles are usually loaded with bacteria.

A simple and inexpensive method which will help to produce clean milk is the use of a small-top or covered pail. There are many types reasonable in price, and of practical value. One of these pails will keep out of milk from 50 to 90 per cent. of the bacteria which ordinarily get into it during the process of milking.

Another precaution is to wipe the udder and flanks of the cow with a damp cloth just before milking. The cloth need not be very wet, but it should have enough water on it to moisten the hair on the parts wiped. This tends to prevent the dust and dirt from falling from the body of the cow into the pail during milking. The stable air should be as quiet as possible during the time that milking is in progress. Anything which stirs up a dust, such as sweeping the stable floor, or feeding hay or grain just before or during milking, is likely to greatly increase the number of bacteria in milk. But even with the best of care a few bacteria will get into milk. Unless it is cooled at once and kept cold, these bacteria will multiply. The temperature should be as low as possible without freezing. If milk is cooled to 50 degrees F. and not allowed to rise above that temperature, very few of the germs which ordinarily get into milk will increase. In most cases, ice will be needed for the proper cooling and storing of milk. With the possible exception of cooling, these suggestions are comparatively inexpensive and easy according to the college, and yet they will help to produce a good quality of milk, and will prevent losses in one of our main sources of food.

Three Carloads of Sheep Brought East

Within the last few days three carloads of Idaho sheep have been brought east under the auspices of the Philadelphia Wool and Textile Association. One carload went to farmers in Massachusetts, one to Virginia and one to Pennsylvania. Two hundred head from the latter car went to farmers in Lehigh county, but there are still about 75 of this carload not disposed of. Any one wishing to purchase some of these good yearling ewes should communicate at once with Mr. A. C. Bigelow, 147 S. Front St., Philadelphia. The sheep are a cross between Cotswold and Hampshire Down, are shorn and can be purchased for about $13.50 each.

These sheep are only forerunners of the ones which are to come. Representatives of the association are now inspecting a lot of 1800, and if found suitable will make immediate plans to bring them east.

Prepare Now to Fit Draft Horses for Show

Draft horses that are to be shown at the county fairs need some extra care and attention. E. H. Hughes of the Missouri College of Agriculture, offers the following suggestions on fitting animals. To show at an advantage horses should be in good condition, well mannered and well groomed. Brood mares and young horses on pasture should be fed some grain for a considerable time before they are shown. The amount of grain will depend on the condition of the animal and also on the pasture. Equal parts of corn and oats have been found to be a good mixture to feed. Stallions and work horses that are to be shown should be fed enough grain and hay to put them in good condition. A little grass or green feed of some kind is useful as a conditioner and as an appetizer.

Draft horses are shown at halter except in the case of draft pairs. It is good form to show mares and young horses with rope halters. Halters made from half-inch rope are preferable except for foals, when halters made from three-eighths-inch rope are more in keeping with the size of the animal. Draft stallions are shown with heavy bridles. Horses should be taught to stand and to lead before they are brought into the ring. Most horses show to good advantage when stretched slightly. It is advisable to exercise all horses to be shown for considerable time before the show, both at the walk and at the trot. Find

a level strip of road and let the animal walk and trot back and forth over a space of 100 feet for ten or fifteen minutes each day, so that he may know what is expected of him when shown. Always stand a horse with his front feet on slightly higher ground than his hind feet.

It is important that horses be well groomed. The materials usually used for grooming are curry comb, hair brush, fiber brush, woolen cloth and damp sawdust. To get an animal's coat in good condition the comb and fiber brush, followed by the hair brush, should be used every day. After currying, a woolen cloth rubbed over the coat gives the hair a gloss and also takes up any dust that may be deposited. To remove dirt from the hair sawdust which has been thoroughly dampened should be rubbed into the hair and then brushed out with a stiff bristle brush.

The mane and tail should be combed daily. Tangled parts should first be separated with the fingers as a comb is likely to pull out the hair. In the larger shows the manes are braided and the tails are tied and artificial flowers are usually appropriately attached.

The attractiveness of an animal is often enhanced by shoeing with heavy shoes, by well oiled hoofs and by singeing the long hairs about the jaws, ears and other places with a lighted tallow candle.

Pig Pointers.

Get the pigs out on pasture as soon as possible. It will benefit both the pigs and the pasture, provided the pigs are taken off during wet weather.

A bushel of corn fed on some good pasture is worth two fed in a dry lot.

Red clover, alfalfa, rape, soy beans and blue grass all make excellent pasture for pigs. For efficiency they rank in the order given.

Provide some shade in the pasture and some shelter from bad weather. The pigs will show their appreciation in increased returns.

The use of a self-feeder will help in the labor problem, but a self-feeder needs replenishing just the same as the feed bin.

Shell the corn for the self-feeder and have a separate compartment for tankage. If the pigs are pretty small, it will be advisable to provide middlings in addition.

With the pigs on some legume pasture, little tankage or middlings is necessary.

Do not let the pigs wean themselves. Take the sow away from the pigs when they are about ten or twelve weeks old and give her next litter a fair start in life.

Take the sow away from the pigs and not the pigs from the sow. In this way the pigs will be left in their accustomed lot and will be less likely to notice the change in their living conditions.

Keep the pigs growing, for each day passed without some gain in weight is a loss to the feeder. J. W. Wulchet, Ohio College of Agriculture.

Selecting the Stallion

One of the first considerations in the breeding of live stock is the selection of the proper sire, say the specialists of the United States Department of Agriculture. The influence of the sire is preeminent because he directly affects a greater number of offspring than does the single female. There can be no improvement or grading up process by the use of scrub sires. Horse breeders should recognize the fact that it is not a paying proposition simply to breed mares to any stallion that may be available. A sound, pure-bred stallion should be used if the best results are to be obtained.

The stallion selected should conform as closely as possible to the breed and type of the mares that are to be bred. Stallions of pure breeding are, by virtue of their unmixed ancestry, possessed of greater prepotency than are grades or scrubs, and will therefore invariably impress their offspring with their breed characteristics and individual merit.

A low service fee is too often the deciding factor with many farmers and mare owners in the selection of a sire. A low service fee ought never to be a temptation but rather should be taken as a warning. A low fee is usually a sign of an inferior stallion. Colts from inferior or scrub sires will sell for much less than those sired by the sound, pure-bred stallion. This fact is well illustrated by facts given in a leaflet issued by the Wisconsin Live Stock Breeders' Association.

In this leaflet it is stated that a certain farmer had for sevral years been breeding his mares to a grade stallion. He finally decided to patronize a pure-bred. Some time after he held an auction sale. Yearlings, 2-year-olds and 3-year-olds, all by the grade sire, sold for $37, $55, and $76 a head respectively, while weanlings from the same mares, sired by a pure-bred stallion, averaged $101 each.

The time to begin is now. All inferior pure-bred colts and all grade and mongrel colts should be castrated. Only the best mares should be retained, and these bred to sound pure-bred sires. One of the best ways to stimulate interest in the breeding of better horses is to arrange to hold a fall colt show. A string of promising colts will afford striking evidence of the result of breeding the best, and prove a splendid advertisement for the community.

The Care of Sheep

The present world shortage of wool and meat should be an incentive to give the flock of sheep extra care and attention during the present year. The pasture should be arranged for the greatest supply of feed. The lambs that are to go to market in the fall should produce the maximum amount of fleece and meat at the least expenditure of money, is the opinion held by the authorities at Pennsylvania State College.

As soon as the weather is warm enough, the entire flock of sheep should be dipped twice at an interval of two weeks. Any of the standard disinfectants may be used for this purpose. This treatment will rid the sheep of external parasites.

The flock should have plenty of good pasture during the entire summer. The lambs should have a separate feeding place where they can be supplied with a small amount of grain. When the lambs are weaned, they should be placed on a clean pasture where no sheep have been pastured during the season, or on a field seeded to some forage crop. Clean pasture is necessary to avoid trouble with internal parasites.

If the sheep show signs of becoming sluggish, they should be treated for stomach worms. The gasoline treatment is the simplest. Keep the sheep off feed for twelve hours. Give each lamb a dose of five ounces of cow's milk, one-half teaspoonful of gasoline, and one tablespoonful of raw linseed oil. Double the dose for mature sheep. The treatment should be repeated three consecutive days.

To protect the sheep from dogs they should be placed in a barn, shed or enclosure of some kind at night. Even

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Wanted. RELIABLE AGENTS who do can-vassing among farmers. Well advertised line. Write for terms. Address J. E. TOWNSEND, WOOSTER, OHIO

though there may seem to be little danger of dogs attacking the flock, one should not take chances.

Save every lamb dropped. Make certain that all have been docked. Castrate all male lambs that are not to be kept as rams for breeding. Save all the good ewe lambs for breeders, as they will be in demband during the next few years. Market all the surplus lambs as soon as they are ready to be marketed. Take care of the breding flock so that it will be in condition in the fall for breeding. Keep a check on the breeding to make certain that all the ewes are bred.

Wire Cuts and Other Wounds

First aid is most important.

Quick healing leaves smaller scars.

Don't use dust or lime to stop bleeding.

Bleeding that can be stopped with powders will soon stop itself anyhow.

Frequent washing irritates wounds, prevents prompt healing and may cause proud flesh.

Small concealed stab wounds, such as those from nails, are the most likely to cause death. Find them and keep them clean and well disinfected.

Swab out deep cuts with pure tincture of iodine as soon as it can be secured and they will take care of themselves then if the normal pus discharge is removed.

A long-continued discharge from a wound indicates an abscess pocket, a bone injury, or the presence of a snag or something else that should not be in the wound. Call a veterinarian.

As soon as bleeding has been stopped, wash the wound with a pint of warm water to which two teaspoonfuls of creolin, lysol, carbolic acid, or some similar disinfectant has been added.

A wound should be healed in about three weeks. If it is doing well the swelling will gradually go down, and the discharge will be odorless, thin, and bloody at first, and thicker and whiter later.

Antitoxin will prevent lockjaw after nail or other puncture wounds. If not so prevented, very few of the lockjaw cases ever recover. The hard crust lime forms over the surface of a wound favors lockjaw by shutting out the air.

Bleeding from a leg can always be stopped by tying a small rope loosely about the wound, then twisting it with a stick or small rod. Tighten till bleeding stops Apply bandages and remove the cord if possible. If bandages cannot be applied, prevent serious bleeding by pressing the fingers against the cut blood vessels until a veterinarian can be called.—L. S. Backus, Missouri College of Agriculture.

Don'ts for the Dairyman

H. H. KILDEE.

In rearing and developing dairy heifers—

Don't overfeed. Twice as many calves are stunted by overfeeding as by underfeeding.

Don't change suddenly from whole to skim milk.

Don't keep calves in damp, dark, crowded, poorly ventilated barns.

Don't feed milk in dirty pails.

Don't be irregular as to time of feeding, temperature or amount of milk.

Don't feed too much alfalfa hay before the calf is three months old.

Don't let calves suck each other after drinking milk. They should be placed in stanchions and fed grain.

Don't make calf go without water because it has had milk.

Don't let calf drink foaming milk just from the separator.

University Farm, St. Paul.

State Experiment Sta

News from the Breed Associations

CATTLE.

The forty-ninth annual meeting of the American Jersey Cattle Club, held in New York City, May 3rd, at which every state but one was represented, disclosed that the year just ended has been the most successful in the history of the Club. The secretary's report showed the finances to be in excellent condition, and also a substantial increase in the amount of business transacted. During the year 36,117 Jerseys were entered in the Herd Register and there were 34,499 transfers recorded, indicating an increase of 17 per cent. over the year before in the sale of Jerseys, which is the largest increase in transfers that has been recorded for over twelve years. Eighty-four new members were admitted to the Club during the year, bringing the total membership up to 649 against 592 the year previous. There are now one hundred applications for membership pending, and it is expected that the Club membership will soon be over 700. A report on extension work brought out the fact that Jersey breeders are boosting the breed and its products more energetically than they have ever done before, and that great results have been attained in stimulating interest in the breed. Field workers attended over 500 meetings and have been instrumental in organizing many state and local associations. It is planned to carry on this work more vigorously during the coming year. M. D. Munn, of St. Paul, Minn., was unanimously re-elected president of the Club.

Berkshire Boar, Grand Leader 2nd 190377

Recently brought into Pennsylvania from California by Milton R. Thomas. Grand Leader 2nd was grand champion Berkshire and headed the first prize aged herd at Panama Pacific Exposition.

The thirty-second annual meeting of The Holstein-Friesian Association of America will be held June 6, at Worcester, Mass., in The Bancroft Hotel, at 10 o'clock A. M., for the election of officers and the transaction of any other business which may legally come before it.

During the period from March 30th to April 11th, the reports of short time tests of 583 animals were received and have Been accepted to entry in the Holstein-Friesian Advanced Register, of which 26 were extended to 14 days, 5 to 15, 39 to 30, and 3 to 60 days. This herd of 583 animals, of which one-half were heifers with first or second calves, produced in seven consecutive days, 242,034 lbs. of milk containing 8,851.618 lbs. of butter fat, thus showing an average of 3.66 per cent. fat. The average production for each animal was 415.2 lbs. milk containing 15.183 lbs. fat.

SWINE.

The American Duroc-Jersey Swine Breeders' Association is financing promotion clubs in six Southern States and will this fall put on a show of best four spring pigs by members of these clubs. Over a thousand dollars will be distributed in these six shows, to the club members, besides the regular appropriation for these six state fairs. The American's receipts for April exceeded the 1916 receipts for the same month by 32 per cent. Secretary Evans has just filled an order for two bred gilts and a yearling boar for the Escola Agricola Institute in Brazil. This is the third shipment of Durocs they have ordered, and they find ready sale for all the progeny they can produce

Poland China breeders who expect to exhibit their hogs this fall at the fairs, have the most liberal classification ever made. The American Poland-China Record Association will offer $14,000 in cash prizes, as follows: Seventeen futurity shows, representing state shows, $600 each; National Swine Show, open classes $2000 and futurity classes $1000, and about $800 in pig club and other promotion work.

By the number of pedigrees received by the American Record office daily, one would guess that there is either a greater number of swine than the government estimate indicates, or else the breeders are selling and recording more hogs from their herds for breeding purposes than ever before. March exceeded all other months in the amount of business received. The increase over March, 1916, was 61 per cent.

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SALE, JACKS Can suit the most exacting; for Jacks, for size, prompt servers and individuals and quality. Bargains. John E. Voge, Jr., R. R. 2, West Alexandria, Ohio.

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The boar Majestic Mammoth 229500, weight 407 lbs. at 7 months, was bred and developed by us. If you want the big kind write to—

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though there may seem to be little danger of dogs attacking the flock, one should not take chances.

Save every lamb dropped. Make certain that all have been docked. Castrate all male lambs that are not to be kept as rams for breeding. Save all the good ewe lambs for breeders, as they will be in demband during the next few years. Market all the surplus lambs as soon as they are ready to be marketed. Take care of the breding flock so that it will be in condition in the fall for breeding. Keep a check on the breeding to make certain that all the ewes are bred.

Wire Cuts and Other Wounds

First aid is most important.

Quick healing leaves smaller scars.

Don't use dust or lime to stop bleeding.

Bleeding that can be stopped with powders will soon stop itself anyhow.

Frequent washing irritates wounds, prevents prompt healing and may cause proud flesh.

Small concealed stab wounds, such as those from nails, are the most likely to cause death. Find them and keep them clean and well disinfected.

Swab out deep cuts with pure tincture of iodine as soon as it can be secured and they will take care of themselves then if the normal pus discharge is removed.

A long-continued discharge from a wound indicates an abscess pocket, a bone injury, or the presence of a snag or something else that should not be in the wound. Call a veterinarian.

As soon as bleeding has been stopped, wash the wound with a pint of warm water to which two teaspoonfuls of creolin, lysol, carbolic acid, or some similar disinfectant has been added.

A wound should be healed in about three weeks. If it is doing well the swelling will gradually go down, and the discharge will be odorless, thin, and bloody at first, and thicker and whiter later.

Antitoxin will prevent lockjaw after nail or other puncture wounds. If not so prevented, very few of the lockjaw cases ever recover. The hard crust lime forms over the surface of a wound favors lockjaw by shutting out the air.

Bleeding from a leg can always be stopped by tying a small rope loosely about the wound, then twisting it with a stick or small rod. Tighten till bleeding stops Apply bandages and remove the cord if possible. If bandages cannot be applied, prevent serious bleeding by pressing the fingers against the cut blood vessels until a veterinarian can be called.—L. S. Backus, Missouri College of Agriculture.

Don'ts for the Dairyman

H. H. KILDEE.

In rearing and developing dairy heifers—

Don't overfeed. Twice as many calves are stunted by overfeeding as by underfeeding.

Don't change suddenly from whole to skim milk.

Don't keep calves in damp, dark, crowded, poorly ventilated barns.

Don't feed milk in dirty pails.

Don't be irregular as to time of feeding, temperature or amount of milk.

Don't feed too much alfalfa hay before the calf is three months old.

Don't let calves suck each other after drinking milk. They should be placed in stanchions and fed grain.

Don't make calf go without water because it has had milk.

Don't let calf drink foaming milk just from the separator.

University Farm, St. Paul.

News from the Breed Associations

CATTLE.

The forty-ninth annual meeting of the American Jersey Cattle Club, held in New York City, May 3rd, at which every state but one was represented, disclosed that the year just ended has been the most successful in the history of the Club. The secretary's report showed the finances to be in excellent condition, and also a substantial increase in the amount of business transacted. During the year 36,117 Jerseys were entered in the Herd Register and there were 34,499 transfers recorded, indicating an increase of 17 per cent. over the year before in the sale of Jerseys, which is the largest increase in transfers that has been recorded for over twelve years. Eighty-four new members were admitted to the Club during the year, bringing the total membership up to 649 against 592 the year previous. There are now one hundred applications for membership pending, and it is expected that the Club membership will soon be over 700. A report on extension work brought out the fact that Jersey breeders are boosting the breed and its products more energetically than they have ever done before, and that great results have been attained in stimulating interest in the breed. Field workers attended over 500 meetings and have been instrumental in organizing many state and local associations. It is planned to carry on this work more vigorously during the coming year. M. D. Munn, of St. Paul, Minn., was unanimously re-elected president of the Club.

The thirty-second annual meeting of The Holstein-Friesian Association of America will be held June 6, at Worcester, Mass., in The Bancroft Hotel, at 10 o'clock A. M., for the election of officers and the transaction of any other business which may legally come before it.

During the period from March 30th to April 11th, the reports of short time tests of 583 animals were received and have been accepted to entry in the Holstein-Friesian Advanced Register, of which 26 were extended to 14 days, 5 to 15, 39 to 30, and 3 to 60 days. This herd of 583 animals, of which one-half were heifers with first or second calves, produced in seven consecutive days, 242,034 lbs. of milk containing 8,851.618 lbs. of butter fat, thus showing an average of 3.66 per cent. fat. The average production for each animal was 415.2 lbs. milk containing 15.183 lbs. fat.

SWINE.

The American Duroc-Jersey Swine Breeders' Association is financing promotion clubs in six Southern States and will this fall put on a show of best four spring pigs by members of these clubs. Over a thousand dollars will be distributed in these six shows, to the club members, besides the regular appropriation for these six state fairs. The American's receipts for April exceeded the 1916 receipts for the same month by 32 per cent. Secretary Evans has just filled an order for two bred gilts and a yearling boar for the Escola Agricola Institute in Brazil. This is the third shipment of Durocs they have ordered, and they find ready sale for all the progeny they can produce

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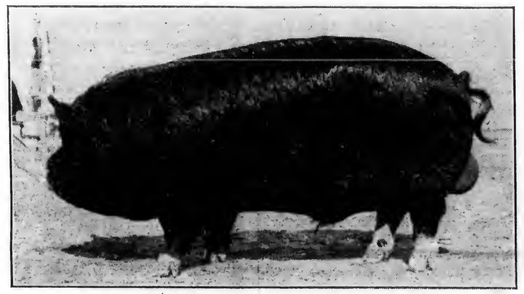

Berkshire Boar, Grand Leader 2nd 190377

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State Experiment Sta.

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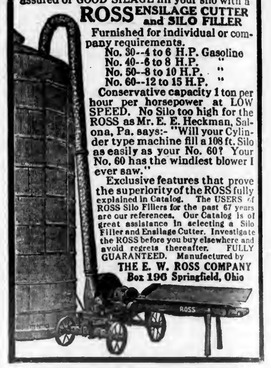

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INTENTIONAL SECOND EXPOSURE

Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

(Copyright 1916, The Bobbs-Merrill Company)

CHAPTER XV.

A WOMAN AT LAST.

Even if Joel's command of English had enabled him to express himself freely regarding his sister's latest acquisition, the opportunity was not immediately forthcoming. The demonstrations of five excited children, introduced into an environment entirely unfamiliar, proved absorbing to all the household. With the exception of the baby who clung shyly to Persis, refusing to leave her side, the new reinforcements to the Dale family at once organized exploring expeditions about the premises. Little feet clattered on the stairs and shrilly sweet voices announced discoveries from garret to cellar. Joel, who had improved the first opportunity to withdraw to his own room, pushed the heaviest chair against the door in lieu of a key and sat in the chair. And though his knob rattled a number of times, the investigations of the juvenile explorers ceased at his threshold.

When the summons of the supper bell sounded through the house, Joel was uncertain whether to indicate his displeasure by remaining in his room or to present himself as usual, allowing Persis to see with her own eyes the condition to which her selfishness had reduced him. He decided on the latter course, not so much as a concession to his appetite as because he feared that in Persis' present absorption, his absence would hardly be noticed. Wearing the expression becoming one stricken by the hand of a friend, he left his room and faced the invaders below.

The dining room table had been extended to a length which carried his thoughts back to his childhood. The baby, a frail looking child, between two and three, had not yet attained the dignity of a place at the table but sat in a high-chair at Persis' left and drummed with her spoon upon the adjustable shelf which served the double purpose of keeping her in place and supporting her bowl of bread and milk. The renaissance of the high chair was responsible for a curious surge of emotion through Joel's consciousness. Persis herself had once occupied that chair and for a moment his sister's matronly figure at the head of the table was singularly suggestive of his mother. He dropped into his place with a hollow groan.

"Has he got a stomach ache?" inquired five-year-old Celia from the other end of the table. The echoing whisper was distinctly audible. Betty, ten years old, pink, prim and pretty, blushed reproachfully at her new foster sister, while Mary, who was just bringing in the milk toast, was agitated by a tremor which imperiled the family supper.

"Sh!" Persis temporarily subdued the outbreaking of her new responsibilities by a lift of the eyebrows, and began to serve the milk toast with lavish hand. Joel waved away the plate Mary brought him.

"I can't eat that truck. Truth is I haven't got a mite of appetite, but just to keep up my strength I'll take a soft-boiled egg. I've got to have something sustaining."

"Two eggs, Mary," said Persis to her hand-maid. "And give 'em just two minutes and a half." The order failed to attract the attention of Celia, absorbed at the moment in allaying the pangs of appetite. It was not till the eggs were brought in and placed by Joel's plate that the irrepressible infant was roused to the realization of the enormity of the situation. She dropped her fork with a clatter.

"Oh, Aunt Persis, see what they've gone and done."

"What is it, child?"

"You said that little chickies came out of eggs." There was no further pretense of whispering on Celia's part. Her voice rose in a tragic wail. "And now he's going to eat up those eggs, and I wanted to save 'em to make chickies of. Oh, dear, dear!"

"'Tain't the right time of year for chickens, dearie," Persis explained soothingly. "We'll have plenty next spring." But Joel glanced at the objects which had called out Celia's protest with an air of extreme distaste.

"It's enough to take away a hearty man's appetite," he complained. "I guess if my victuals are going to be grudged me, I'd better eat up-stairs."

"Don't gobble, Malcolm," said Persis, ignoring her brother's burst of ill temper and addressing the little lad on her right. "And tuck your napkin under your chin so you won't get anything on your blouse."

At this point the tactful Betty created a diversion by inquiring, "When shall we start going to school, Aunt Persis? Monday?"

"Looks to me as if tomorrow'd be the best day. It's my idea that if a thing's worth starting at all, you can't start too soon. Some folks save up their good resolutions for the first of the year, but it's a better way to begin right off as soon as you think of it. And then when the New Year comes, you're just that much ahead."

"I'm going to study awful hard," declared Algie, with an air of putting this good counsel to immediate application.

"Well, I'm not," announced Malcolm with equal decision. And then as Betty emitted a protesting and shocked murmur, he explained: "Of course I'll study some, but I've got to save the most of my strength for playing football when I'm big."

Joel pushed back his chair and took his egg cup from the table.

"I guess I'll go to my room, Persis," he said in a hollow voice. "Maybe up-stairs where it's quiet I'll be able to eat a little. And tomorrow you'd better have Mary make me some beef tea. I've got to have something to keep up my strength." Slowly and solemnly he mounted the stairs, convinced by the increased animation of the voices in the room below that his departure had not cast an irreparable gloom over the cheerful spirits of the diners.

This time he did not feel it necessary to barricade the door. Indeed he left it a trifle ajar, and so was party to the cheerful confusion of getting the children to bed. The baby—Amaryllis was her impossible name, though she looked too fragile to sustain its weight—was to share Persis' quarters. The two older girls occupied the chamber adjoining. The two boys had been assigned to a snug little room on the other side of the hall.

"Close by me so I can hear every mite of their rowdy-dow," Joel thought with bitterness. But in spite of himself he listened. The children were calling to one another across the hall. Apparently their previous acquaintance had been slight, and in addition to the excitement of finding themselves in a new environment, they were experiencing the more intoxicating novelty of becoming acquainted all at once with a fair-sized contingent of brothers and sisters.

"'Most ready for bed, children?" Persis' voice sounded rich and deep, contrasting with the piping chatter. "Time you was asleep, for tomorrow's a school day. And you've got to say your prayers yet."

"I said mine on the train coming down," explained Malcolm with his quaint drawl. "Thought I might as well save the time as long as there wasn't anything else to do."

"I've got a new prayer to say," announced Celia, flashing into the hall, a diminutive apparition, white clad, with twinkling pink feet. "It's this way:

"'Baa, baa, black sheep, have you any wool?
Yes sir, yes sir, three bags full.'"

"I think I can teach you a nicer prayer than that," Persis said serenely, while the older children laughed with the vast superiority of their wider knowledge. Joel uttered an exclamation of horror.

"Children are natural blasphemers. Persis ought to take that limb in hand. If she don't know the difference between Mother Goose and praying, she ought to be taught quick. Old Doctor Watts was in the right of it.

"'Lord, we are vile, conceived in sin,
And born unholy and unclean.'"

The murmur of conversation in the adjoining rooms died away. Once or twice after quiet descended, a little voice spoke out like the chirp of a drowsy bird, brooded over by mother wings. Persis went softly down the stairs. Joel waited long enough to make his advent impressive and followed her.

She sat as he had seldom seen her, thrown back in the roomy recesses of the big easy chair, her hands lying loosely in her lap. Her attitude suggested the relaxation following fatigue. Her eyes were half closed, her lips smiling. An indefinable rapture radiated from her. All her life Persis Dale had been a resolutely cheerful person. But that consistent, conscientious optimism was as unlike her present lightness of heart as the heat of a coal fire, carefully fed and tended, differs from the gracious warmth of June.

Singularly enough the sight of her satisfaction stirred her brother to instant indignation. Up to this moment a sense of grievance had been uppermost. Now he found himself shaken by hot anger. The instinct of the male to dominate, outlasting the strength which sustains and protects, spurred him on to have his way with her, to master this madness which threatened the peace of his life.

"Persis," he began in a loud angry voice, "what's the meaning of this piece of tomfoolishness?"

She opened her eyes and looked at him. After her two weeks' absence, their longest separation in twenty years, she saw him almost as a stranger would have done, a slight, undersized man with a bulging forehead which told of nature's generous endowments, and the weak chin, explaining his failure to measure up to the promise of his youth. His disheveled hair and burning eyes gave an unprepossessing touch to the picture. But the maternal feeling, always uppermost where her brother was concerned, had been intensified by the children's advent. Persis felt for the moment the indulgent disapproval of a mother toward an unreasonable child.

"Why, Joel!" Her voice, with its new depth and richness, caressed the name it uttered. "What's foolish about it?"

The gentleness of her answer misled him. He felt a sudden thrilling conviction of his ability to bring her to terms.

"What's foolish about it? What ain't foolish, you'd better say. Looks to me as if you'd taken leave of your senses. Filling up the house with pauper brats."

The blood went out of her face. The smile lingered, but it had become merely a muscular contraction, like the smile on dead lips. The soul had left it.

"Yes," she said steadily. "It's true they're poor. But it's not for you to fling that in their faces. A man who's lived on his sister's earnings for twenty years."

He was dumb for a moment, wincing under the taunt but lacking words to answer. He was not without reasonable qualities, and reason told him he had taken the wrong track. The change in his voice when he spoke again would have seemed ludicrous had she been in a mood to be amused.

"See here, Persis, you've got a chance now to take things easy. You've worked hard," he admitted patronizingly, "and you've earned a right to enjoy the rest of your life. Now, see how silly 'twould be to saddle yourself with looking after a pack of children. It's no joke, I can tell you; bringing up five young ones, nursing 'em through measles and whooping cough and the Lord knows what, and never being sure whether they'll turn out good or bad. Maybe you think I'm prejudiced, but I'll bet you anything you like that at this minute half Clematis is wondering whether you're clean crazy or what."

Under his conciliatory address her first anger had cooled. A little half-contemptuous smile curled her lips.

"It's a funny thing, Joel, you've known me for quite a spell—thirty-seven years, the sixth of October—and you haven't found out yet that I'm not looking for an easy time. My idea of Heaven ain't a place where you can sit down and fold your hands."

"I s'pose you'd rather stick at home and fuss over other folks' children than travel. You used to be crazy about foreign places, Roosia and Italy and Egypt." Joel's eyes kindled with an unholy light as he repeated the magic names. A bystander might have been reminded of another tempter showing the kingdoms of the earth as a lure.

"Time enough to travel," Persis said laconically, "when my family is raised."

"Giving up all the peace of your home, all the quiet—"

"Stillness isn't peace, Joel. There's quiet enough in the grave, if that's what you're after. I don't want the hush of the tomb around here. I want little feet tripping up and down and little voices calling. Seems to me as if this old house had come alive since I brought these children into it. And I've come alive myself. It's what I always wanted, a family of children. I gave it up like I've given up so many things, but I've got it at last, thank God."

"Persis," Joel remonstrated in shocked accents, "it's not becoming for a single woman to say things like that. Wanting children, indeed. If you weren't my sister I shouldn't know what to make of such talk."

She leaned toward him, her hands on her knees. Her gray eyes, warmed almost to blue by joy and tenderness, were steely as she faced him.

"Joel, you don't take into account that the Almighty didn't make old maids. He made us just women, and the hunger for children is nothing more to be ashamed of than longing for food and drink. I'm not accusing Him either, when I say that life isn't fair to a lot of us. It hangs other people's burdens on our backs, and they weigh us down till we haven't the strength to take what is rightfully ours. These children had ought to be mine. My blood ought to be in their veins. It's too late for that, but it's not too late for everything. What would Aunt Persis Ann's money be worth to me if all it meant was that I could fix up the house and leave off making dresses for other folks and travel around and see the world? It's done more than that. It's made up to me for being cheated out of my rights. It's made me a woman at last."

Up-stairs sounded a fretful wail, a sharp little note, piercing the quiet evening with its suggestion of discomfort or alarm. In an instant Persis was on her feet. Again her face was luminous. Suffused with a transforming tenderness, it lost its stern lines and became radiantly youthful. Blue misty shadows veiled the steely light of her eyes.

"The baby's crying," she said, and left him swiftly. And Joel, with a bewildered sense of enlightenment carried to the point of dazzling effulgence, clapped both hands over his throbbing head.

"Well," he gasped, "I'll be jiggered! Looks like you can live in the same house with a woman from the time she's born till she's gray headed and not know her any better than if you'd met her once at a Sunday school picnic. To think of Persis with all those feelings bottled up inside her for the last twenty years. As the immortal Shakespeare says,

"'Who is't can read a woman?'"

(Continued next issue.)

Work for Pomona Grange

Many Pomona Granges are conspicuous mainly for their social and fraternal features, but fail to realize their position between the state and subordinate organizations. The State Master of Michigan recently stated that there are four things of immediate and vital importance which Pomona can do in this relationship.

First she can demonstrate what the real function of a Pomona Grange is in the way of arousing, maintaining and increasing subordinate Grange interest and growth. Second, she can plan, support and execute worthy community undertakings where the county is the proper unit of organization. In at least three counties the county fair has been rescued from ruin and put upon a sound footing by Pomona Grange support during the last two or three years. Third, the Pomona Grange can foster helpful public sentiment in behalf of needed legislation and in support of pending reforms. Fourth, she can be the medium through which the State Grange may reach the subordinate Granges and by so doing create a new and vital relation for herself in respect to both. Undoubtedly one of the fine questions of Grange law and procedure for the not far distant future is that relating to the status of the Pomona Grange.

Michigan is trying to demonstrate what a live, wide-awake Pomona can do as a medium between the state and subordinate Granges and the influence it can become in a county.

A TWICE-A-MONTH JOURNAL of practical, every-day experience for, and by, men and women who take their living from the soil.

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The Practical Farmer

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Saving the Food Increase for Later Use

By PEARL MAC DONALD

In Charge of Home Economic Extension Work, Pa. State College

On every hand we are advised to grow more food, but if some steps are not taken to care for the surplus which will be produced during the summer, we will be little better off than if we had only raised our usual amount. It is not the amount of food produced as much as it is the amount which will reach the consumer, that will have its effect on the world's supply. This year more than ever before it will be a crime to allow the farm surplus to go to waste. Apples and peaches rotting under trees and vegetables plowed under for the want of a fresh market must not happen this summer. Possibly you will not need them, but more than likely there will be a demand for them later which will offer a profitable and patriotic opportunity for you.

The work of the home economics extension service in connection with the work of the county farm bureaus under the direction of the various state colleges, has been steadily working along conservation of food lines during recent years. In fact, in a few counties in the East a woman as well as a man representative are devoting all their time to extension work under the auspices of the farm bureau. This year, more than ever before, the work of the girls' canning club, individual women and community organizations will prove of untold value in conserving the summer crops for winter use. Pennsylvania, among other states, has arranged for a series of meetings to take up this timely work, and we hope they will be the means of inspiring hundreds of home makers, not only on the farm, but in the towns, to "do their bit" in bringing to a successful end the big problem we now have on our hands.

We hear in various ways of a predicted shortage of glass and tin containers, which will prevent great numbers of our new gardeners from canning their surplus for winter, but which will have little effect on the provident housewife who always has on hand from 100 to 1000 glass jars which she fills each year for winter use. Before factory canned products became so abundant and some of our less provident farm wives began to figure that it is cheaper to buy than to can, various drying methods were successfully used. The farm dry house was considered a part of the necessary equipment of every well conducted farm and many of these houses can still be seen scattered throughout the country, some of them still being used. As drying practically does not change the nutritive value of food, there seems to be no reason why this year the practice could not be universally adopted. There are several inexpensive outfits on the market which can be bought and will be found satisfactory for those who do not care to use home-made ones.

Drying is one of the oldest methods of food preservation. Indeed it is nature's own method for keeping grain and many kinds of seeds. One of the necessary requirements for growth of the micro-organisms which cause food to spoil is moisture, and if this condition can be overcome food can be kept indefinitely by exposing the food to the direct rays of the sun, or by applying artificial heat conditions are such that the harmful bacteria cannot do their destructive work. Just as when nature wants to germinate or sprout her stored products she applies moisture, so can we readily reconvert our dried products into valuable foods by soaking and thus replacing the water lost by evaporation. The products can then be stewed or cooked.

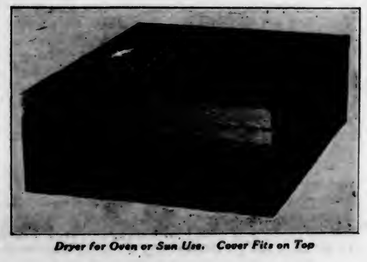
There are a large number of different fruits and vegetables which can be dried for future use. Apples are generally looked upon as of first importance for drying, but cherries, currants, huckleberries and peaches can also be used. Pears and quinces can be dried satisfactorily, but better results can be had from quinces by using them for jellies or preserves. If a little different flavor is desired for the dried apples a few quinces may be dried with them at the same time and the result will be highly satisfactory.

Peas, beans, corn and pumpkin are the best vegetables for drying. The housewife who has on hand a varied supply of dried vegetables as well as canned ones, is in little danger of having her menu become monotonous during the winter.

Dried fruits and vegetables contain a greater concentration of food elements than an equal weight in the fresh food. This is because a large amount of the water which they contain has been evaporated, whereas their actual nutritive value has been practically unchanged. Their color and flavor are slightly changed, due to the oxygen of the air upon them. The light color of factory dried products is obtained by chemically treating them, but it does not add any to their value. It is only done because the public has become accustomed to a less highly colored product and demands it. In preparing dried fruits for the table the water which has been lost by evaporation is replaced by soaking, which makes them equal in nutritive value to that of the fresh product.

Efficient Dry House Used on a Pennsylvania Farm

The illustration shows a dry house which is used at the present time on a Pennsylvania farm. It has ten racks, five front and five back, four of which are shown slightly extended and another is leaning against the house in order to show its simple construction. An old-fashioned bake oven will make an excellent dry house, but an inexpensive structure such as is shown in the illustration may be constructed in a short time by any person handy with tools, and will repay its cost many times over.



Dryer for Oven or Sun Use. Cover Fits on Top

If only a small amount of drying is to be done, satisfactory results can be obtained by using one of the home-made trays illustrated in the photograph. If the kitchen stove is to be used for the work the tray should be made so as to fit the oven, or if the sun method is to be used the trays can be made any convenient size. The bottom should be made out of copper or other screening or plastering laths. If any other kind of screening is used care should be taken that it does not corrode after the food material has been in contact with it for some time. In order to get a circulation of air around the tray it is raised on legs about four inches high. Too much emphasis cannot be placed on the importance of protecting the drier from flies. Mosquito netting should be used around the base and a cover should be made for the drier in order to afford this protection. If it is desired to use more than one screen at a time two or more can be placed on top of each other, thus taking up less room and making it handier to afford protection from the flies.

Oven drying will be found more satisfactory than the sun process, because the heat is more uniform and can be regulated better. During rainy or damp weather it will be necessary to use the oven process entirely, and, of course, during the night it will be necessary to take the trays into the house to protect them from dampness. After the products have been dried and ready for storage it is necessary to protect them from insects and worms. This can readily be done by storing them in a heavy paper sack, making sure that it is tied tight and then kept in a dry place. Special precaution should be taken for mature peas and beans by thoroughly heating them in the oven before putting them away.

Various methods can be followed for the drying of fruits and vegetables. Wherever more than one method is given, either may be used, depending upon the preference of the individual.

APPLES, PEARS, QUINCES.

Method I.—Wash, wipe dry, pare, core and cut in slices one-third to one-half inch thick, drop into cold water to which has been added one tablespoonful of salt to the gallon. Remove from water, wipe off excess moisture with soft cheesecloth or other clean absorbent fabric. Spread on pans or trays one layer thick and expose to rays of sun or oven heat. If they are to be dried in the sun it is often well to put them in the oven for a few hours until the skin covering forms on them, and then put them in the sun. The oven heat should be kept at a low, even temperature. Have the oven just warm enough to dry the fruit slowly, and not to cook it. As the fruit dries, stir and heap up occasionally and then respread so as to cause them to dry evenly.

Method II.—Wash, wipe dry, pare, quarter, core and cut in pieces one-third to one-half inch thick; or pare, core as for baked apples, and cut in slices crosswise one-third to one-half inch thick; spread on pans or trays one layer thick and expose to the rays of the sun; it is often well to put them in the oven for a few hours until the skin covering forms on them, and then put them in the sun. The oven heat should be kept at a low, even temperature. Have the oven just warm enough to dry the fruit slowly and not cook it. As the fruit dries, stir and heap up occasionally and then respread.

(Concluded on page 235)

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.

EDWARD T. WALKER, Managing Editor

THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS

W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE

F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES

J. C. Billingslea, 119-123 W. Madison St., Chicago.

A. H. Billingslea, 1 Madison Ave., New York.

A. D. McKinney, Third National Bank Bldg., St. Louis.

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JUNE 15, 1917

Where Money Talks

YOU no doubt know a neighbor, possibly a member of your own family, who is lending his life to the Government for $30 a month with no guarantee of a safe return. Now you have a chance to loan the Government your thousand dollars for $35 a year with a guarantee for their safe return when they have finished their usefulness. Liberty Loan bonds are the medium of this service, and for those who cannot afford one thousand dollars, smaller bonds down to fifty dollars are issued. We are actually in the war now, and war means sacrifices must be made by everybody if we are to be successful. Those of us who were not called upon to register a few days ago to actually do the fighting, what are we to do to help win? We will raise the food to keep others from starving! Yes, but times call for more than this.

The city residents see on every hand pleas for the Liberty Loan. The street cars, billboards, store windows and newspapers are crowded with notices regarding it. The big department stores sell the bonds. banks all handle them and many business houses have devised methods whereby their employes can purchase them on monthly installments. In Philadelphia alone up until June 4th more than one hundred and fifteen million dollars worth had been sold.

Some people might say that the interest paid (3½ per cent.) is not high enough to induce them to buy. But who pays the interest? The bondholders themselves are to be taxed to pay the interest because surely we are not going into this war expecting a ransom or indemnity to pay the debts we incur. When speculators take a risk they expect big interest, but investors are satisfied with a lower rate if they know it is safe. No one doubts the safety of this loan. There is only one excuse for you to make, and that is you do not have the money to spare. Your fifty dollars or larger amount might be just the amount needed to turn defeat into victory. Remember, "Germany is watching" and in the words of the rubber stamp on thousands of envelopes going through the mails today, "Your patriotic duty—buy a Liberty Bond."

Corn is Still King

THE one truly American crop is corn, and by it we fall or rise. From the days when it was grown by the Indians, before white men knew of its existence, until today, it has received more care than possibly any other cereal crop. We are inclined to look upon it primarily for the production of live stock and forget its good qualities as human food or how it has built up the huge alcohol, starch and sugar industries.

A kernel of corn furnishes many products. From the germ we derive a valuable oil and oil cake. Gluten feed comes from the hulls and cell walls. Solid sugars and liquid glucoses are obtained from the starch portions of the kernel. As a war time measure alcoholic beverages must go for a while at least. It is too valuable a product to be put to any use except as a means toward winning the war. Thousands suffering in hospitals and on battle fronts will need it, and thousands of industrial needs will call vitally for it. Wood alcohol, the chemists tell us, cannot take the place of grain alcohol in these uses.

There are few parts of this country which are not producing their share of the corn crop this year. It has practically all been planted by this time, but it is still not too late to materially increase the yield by careful and constant cultivation. Compared with hand hoeing, it is a pleasure to sit on a riding cultivator and know that each trip across the field will be well paid for at harvest time, Corn is now selling in some of the Eastern markets for four dollars a hundred pounds, and no doubt will still be too valuable to burn next harvest, as was done to dispose of it some few years ago. Think twice before you put away the cultivator this year. Better have the hay a little bit too ripe than take chances on losing a couple hundred bushels of corn which would have been yours if the plant had had the water saved for its use when it was most needed.

High Prices Call for High Producers

THE prevailing high prices for beef and pork have had a tendency to cause large numbers of cattle and hogs to be sent to market, and at the same time have discouraged the purchase of these animals for breeding and fattening. Reports from New Jersey, where careful investigations have been made, show that a great many dairy cows have been disposed of because of their high value as beef, the high price of feed and the low price of milk. For these reasons it is an excellent time to dispose of the unprofitable producers, but a poor time to quit the business entirely. While patriotism alone demands the feeding and care of plenty of live stock, there are certain facts of a business nature which must not be overlooked.

The level of prices today is higher than usual and it may go higher before it goes lower. There is a doubt if we will ever get back to the price level of a few years ago. Conditions must adjust themselves to the new order of things. Fortunate is the man who is not losing his head over these circumstances but is using them to his best advantage. We believe the price of milk will shortly go higher and at the same time beef and pork won't be much, if any, cheaper.

If you have the accommodations and want to buy some new live stock, have you thought how your banker can help you? Don't wait for a farm loan association to be formed in your community, but see your town banker. Considerable discussion has been going through their trade journals lately as to what bankers can do to help increase live stock production, so you will find your banker posted on the subject. Be prepared to tell him exactly what you want to do and how it ought to turn out. Don't think you are asking him a great favor, as you would be if you were getting money to pay back some you lost through poor management. It is a clear-cut business proposition and he will so regard it. If your proposition is sound, chances are you will get what you ask for, much to the satisfaction and profit of yourself, the bank and the world at large.

World—Not Local Plans

WHAT course shall we as a nation take in bringing to a successful end the world war which has now been going on for nearly three years? Shall we continue as we are at present, allowing trade in foodstuffs to go on unhampered, or shall we devise a plan of regulation or control so that both our allies and ourselves will be protected? This big problem is now puzzling Congress and two bills are pending there which aim to settle this question. They are framed as war measures and place in the hands of the administration emergency powers and funds sufficient to accomplish the ends sought. Some propositions seem rather strong; in fact, the whole proposition is something entirely new for this country and possibly we will not all take readily to it at first. We must remember, however, that these are serious times and if we don't soon make this world a safe place to live in a great deal worse condition may face us.

At the end of the Franco-Prussian war Germany demanded and collected from France a billion dollars, just twice the amount Germany spent. Suppose the Kaiser should win today, what indemnity would he collect? He is said to have already spent twenty times as much as his grandfather did for the Franco-Prussian war. Taking this as a basis, America's share would more than likely be one-third of the total or a trifle over $6,000,000,000. Time is here for us to take a broad idea of things and profit by the lessons dearly learned by our European allies.

One bill, known as the "Food Production" bill (H. R. 4188) provides for extension of the work of the Department of Agriculture, taking a survey of the food supply, distribution of seeds by Secretary of Agriculture by requisition and re-sale at reasonable prices, and enlargement of the co-operative extension work.

The second bill, known as the "Food Control" bill, aims to facilitate and clear the channels of distribution, prevent hoarding, assure fair prices, restrain injurious speculation, prohibit evil practices on exchanges, protect the public against corners and extortion, and reduce waste. It deals with the necessaries of life, including foods, feeds, shoes, clothing, fuel and articles required for their production. It confers, for the duration of the war, wide powers upon the President in the directions indicated, to be exercised only after he has found that a state of affairs warranting action exists.

It will be recalled that a few weeks ago the President issued a statement in which he discussed this situation and told of his intention of creating a commission of food administration. The whole matter requires serious thought and will have to be worked out with reference to what plan will be best for the world at large. It is a big problem and will require big men to handle it. We are back of the plan which they decide as being the one for the quickest ending of the war.

Patriotism in the Kitchen

ON another page of this issue we have an article from a weman who has already seen "the hand writing on the wall" and has started the women of a great state working along the lines of food conservation. Miss MacDonald is not standing idly by and wondering what the farm women can do in this food crisis, but is working heart and soul to show them their wonderful opportunities.

In view of the Government's statements of the shortage of tin cans and glass jars a return to the old drying methods seems to offer great possibilities. No doubt there are thousands of patriotic farm women who think because they must stay home they can do nothing to serve their country.

Just as civilized man is dependent on cooks, so is a nation at war dependent on the women of the home for the utilization of our food supply. What good would it do us to raise a big supply if no effort was made for its proper use and conservation? Every pound saved means a pound more for some one who needs it. We who have been accustomed to plenty of all kinds can hardly realize what it means to be compelled to live on half rations. Every trip less you make to the grocery store means just that much more for those who are not able to grow their own supplies. This year a good garden and an evaporator, a full pig pen and a smoke house will be better than the handiest grocery store and a whole lot cheaper.

Bulletin Helps for Farmers

"Soy Beans" is the title of a valuable 28-page bulletin on this subject just received from the Maryland Agricultural Experiment Station at College Park, Maryland. It tells of the work which they have done with this profitable forage crop, and will be sent to those interested in it if a request for Bulletin No. 201, is made to the above address.

Pennsylvania State College has recently issued Bulletin No. 145, giving a full report of their steer feeding experiments for three years. It is full of valuable information for any one who feeds cattle for market or home consumption, and will be sent free if you write to State College, Pa., and ask the School of Agriculture to send you a copy.

"Foxtail Millet, its Culture and Utilization in the United States" is a 28-page Farmers' Bulletin, No. 792, received from Washington. It is well illustrated and fully covers the growing of this short season crop. A copy may readily be obtained by writing the Department of Agriculture at Washington, D. C., for it.

Any one who has gathered mushrooms in the field will be interested in Farmers' Bulletin No. 796, entitled, "Some Common Edible and Poisonous Mushrooms." Numerous illustrations show the difference between the various fungi and the text is very clear in explaining how they can be told apart. A request to the Department of Agriculture at Washington, D. C., is all that is necessary to obtain a free copy of this bulletin.

Hints on Using the Highways

CHARLES H. CHESLEY

As has often been stated, there is no problem connected with country life of more importance to a community than its highways. It is true that those localities where the buildings are well-kept and attractive and the fields well tilled and fertile almost always boast at least fairly good roads. A prettty safe estimate of the people can be made by the general appearance of the thoroughfares. A strong statement, but in nine cases out of ten a true one! Also it is true that no new farmer will care to move into a neighborhood where the roads are poor and ill-kept.

State supervision and assistance is doing much to provide good roads for the Eastern States. Thus, in some a portion of the revenue derived from automobile licenses is devoted to this purpose. This is just, for not only does the auto demand good roads, but in turn they do much more damage to the roads than teams. In a small town in Maine there are posted on all roads leading into the village signs reading: "Autoists, go slow! We furnish good roads; use them right!" Certainly that is a model sign and I have no doubt it produces much better results than the regulation: "Automobile speed limit 10 miles per hour." The first one appeals to the reason of a driver; the second one demands that he conform to a certain rule. If there is no one looking I would not be surprised if he "opened her up" a little on passing the second sign.

Fast driving cradles and ruts the highways. This, of course, cannot be helped, but much of the wear and tear might be repaired immediately and thereby many a larger job saved. In a case of this kind a "stitch in time saves nine." In those sections where a certain stretch of road is assigned to a local "surveyor," whose duty it is to make the necessary repairs, timely work is quite possible. If the one in authority has the real interest of the road at heart much will be accomplished in this way. In hilly countries it is important that the gutters be kept open, also that the bushes be cut every year and not allowed to overgrow and encroach upon the wagon track. Where the bushes are not kept down the road becomes narrower and narrower each year.

Heavy teams should not be driven over a newly repaired highway immediately following a rainstorm; or if it is necessary to do so the ruts should be carefully filled either by hand work or the use of a drag. I have in mind a few rods of road that was a constant trouble to the "surveyor." Every rain washed and rutted it because it was underlaid with a ledge. Blasting had been tried several times, but the washing continued, until it was decided to make one good job of it. To begin with, a layer of small stones, a foot in depth, was spread the length of the ledge. On top of this a layer of dirt was placed. This raised the roadbed so that ample gutters were possible. I passed that way recently and the job remained in almost as good shape as when done five years ago. Before that time it was customary to "fuss" with that particular spot more or less every year. Many bad spots may be "fixed" as this one was with permanent results.

Every rural dweller should consider himself a member of a vigilance committee whose duty it is to do everything possible to keep the highways in good shape. Following or during a storm many little items of work may be done along the line by individuals. These little jobs, though requiring but little time, may have far-reaching results.

Modern road construction presents problems of use and maintenance which were never dreamed of when dirt and macadam made the large part of our highways. With the general use of motor traffic both in the town and on the farm a great many of the former objections to smooth surfaced roads have been overcome. Farmers who used to travel to market with small loads are now able to take great deal larger ones with no greater effort expended; in fact, in many cases it is accomplished with less effort and a great deal quicker. This one way of getting better results out of our roads has meant a lot to us when labor was scarce and high priced as it is now.

Improved highways have naturally called for improved bridges and culverts. Our old, picturesque bridges are rapidly passing. Bridges which a few years ago were well able to carry the occasional traction engine cannot last long under the present-day auto trucks carrying a big load and going at a good speed. Steel and concrete are rapidly taking the place of wood and masonry. It very often seems like needless expense for a county to build new bridges, but repairs on an old one would soon amount to as much as the new one costs.

Water is, undoubtedly, the worst natural enemy of our highways. Our forefathers in many cases did not consider this problem when locating the first roads, but followed the water courses as near as possible so as to get easy grades. Proper drainage, therefore, means much to a road and should be given serious attention. It is not only necessary that excess water during a rainstorm should be taken care of, but the base of the road should at all times be kept dry.

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$1195

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You will want this over-strength, these extra features and this added beauty. A car without them will seem lacking when you see these latest Mitchells. If you do not know the nearest Mitchell dealer, ask us for his name.

MITCHELL MOTORS COMPANY, Inc., Racine, Wis., U. S. A.

TIGHT BINDING

Grow a Variety of Roughage

R. B. RUSHING

On many farms the question of feed for the stock through the past extremely long and hard winter was one of the most serious that confronted many a man. The supply, cut short by the dry weather and then spoiled by the later wet wether, was scant for an ordinary winter, but wholly inadequate in some cases, and many cattle and hogs suffered or were sacrificed long before spring grass came. In many cases this showed the need of a greater variety of feeds for roughage, something to supplement the standard feeds.

It is well to plant a number of forage crops, not only for next winter, but to supplement the corn fed to the sows and pigs through summer. The almost prohibitive price of corn and other feeds makes it imperative to provide good hog pasture, and with a good crop of oats, rape with cowpeas or soy beans later on the shoats may be kept growing through the summer without very much grain.

Rape may be sown at any time on land of average fertility and if not too many hogs are turned on it, they cannot keep it down. It is well, however, to sow two fields or divide the field with a temporary fence made of 26-inch woven wire and short posts driven a rod apart, so that when one part has been eaten off closely the hogs may be turned into the other part and the first will grow up in a few weeks and be ready to pasture again.

Cowpeas may be planted alone during June and be ready to turn on during August. Or they may be planted with the corn early in June and when the corn is beginning to glaze the hogs can be turned in and allowed to eat down the whole crop.

If preferred, the cowpeas may be broadcasted and worked under at the last cultivation of the corn. There is no better and cheaper balanced ration than corn and cowpeas for hogs. Let them have free access to plenty of salt, ashes and lime and they will fatten faster than on any other feed unless it is corn and clover or corn and alfalfa. They do not need any stock foods or condiment powders if salt and ashes are provided.

Let us all prepare for next winter. We have plenty of time to plant millet, canes, Kaffir corn, feterita, cowpeas, soy beans and many other things, to suit different farms and climates.

Of these I prefer cowpeas and feterita. As to Kaffir corn, I have only had a limited experience, only raising it in a small way for two seasons, and it is undoubtedly a fine crop, but I prefer the former. Feterita can be planted as late as the first of July and make an abundance of feed, even though the season is too dry for other crops to grow. Cowpeas may be planted and cultivated or sown with drill any time between mid-May and mid-July and make a large quantity of the most excellent feed, when well cured and stored, that will be appreciated by the cattle and sheep as well as hogs next winter. Farther north the soy beans and the Canada field peas come in and do their duty.

I have not mentioned the king of forage crops—alfalfa. Of course, you cannot sow it now and expect to get a crop of hay this year, but by all means prepare to sow some if you have not already sown a patch.

Any of the above mentioned forage crops may be grown at an advantage, and if you have the time and available land better try several of them, so if you fail on some you will have others to fall back on. Feed will be high this winter and forage will be valuable.

Illinois.

Cutting and Curing Alfalfa

Due to the rapid replacing of the horse in the city by the auto truck, timothy is fast losing its demand on the city market. Furthermore, an increasing number of dairies around the Eastern cities demand alfalfa rather than timothy as feed for milk production. A few horsemen are using alfalfa sparingly, but when its feeding value is fully understood, alfalfa will in all probability replace timothy in a large measure as a horse hay, and will soon become the main hay fed by the Eastern buyer. Already the demand for alfalfa is greater than the supply. This encourages the production of alfalfa not only as a hay crop for home consumption, but also as a cash crop. The agronomist of the New Jersey Agricultural Experiment Station states that the sooner we replace some of the clover and timothy with alfalfa, the quicker will be our profits on the hay crop. This does not mean that we should grow no more timothy, but rather more alfalfa and in some cases less timothy. The present production of Eastern alfalfa is not only insufficient to supply the demand, but also too small to educate the future market to its value as a hay.

When the new shoots of alfalfa at the crown of the plant are from one to two inches high, the crop is ready to be cut for hay, is the advice given by specialists of the Ohio Agricultural Experiment Station. The common rule that the crop must not be cut until a tenth in bloom does not always hold, these experts claim, for often the small shoots at the base of the plant get so large before this period of bloom that they are injured by the mowing machine at harvest.

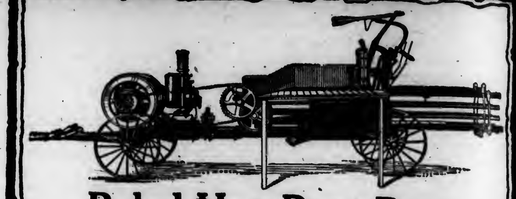
Prompt cutting aids the second crop, and the quality of the hay declines when it stands too long before cutting. When the cutter bar is adjusted so that about two inches of stubble is left, the young shoots will not be appreciably injured.

Saving the leaves and preventing leaching of nutrients by rains are the two essentials in making the best alfalfa hay. Curing the hay in bunches under covers is the most efficient method.

Careless handling of alfalfa may reduce the value of the hay considerably. The leaves contain nearly three times as much nitrogen and calcium as the stems, chemical analyses made at the Experiment Station show. Handling the crop so that the leaves are not broken off will save these most valuable nutritive constituents.

Exposure of the hay to rain is another source of loss of nutrients in hay. Dried alfalfa over which water washed lost 50 per cent. of its nitrogen, 75 per cent. of its phosphorus, 90 per cent. of its potassium and 40 per cent. of its calcium. This represents the common loss in the value of hay exposed to the weather for considerable time when rains occur.

Curing alfalfa in bunches, or cocks, preferably under caps, tends to eliminate such losses. The hay may be cut one day, bunched the next, and then cured in the cock for two days or more. Shattering of leaves is thus prevented, the hay retains its green color, and little of its value is lost. Duck or heavy unbleached muslin covers are frequently used to cap the cocks so that the hay is not wet by dew or rain.



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Better Eggs—Better Prices

MELVILLE DOREY BOWERS

The farmer has in poultry an asset from which he does not always reap the greatest possible profit. He is a busy man and cannot always give chickens the care and atttention which the out-and-out egg farmer deems necessary for results. But every farmer has fowls, from which he desires to make his returns as large as possible. A little study of the markets and a few adjustments to meet the demands will sometimes work wonders. It did in my case and that's the story—the story which I will relate briefly and with the suggestion that what I have done others can do with little trouble and expense.

It was four years ago that I became dissatisfied with the returns from my poultry. I had about 200 hens and at that time I used to carry my eggs in a basket—a few dozen at a time—and trade them in for groceries. Sometimes I got 16 cents a dozen and sometimes 20. Usually the price paid me was two cents below the current wholesale market. In the fall when eggs were scarce, the grocer was glad enough to see my eggs, but in the spring he hemmed and hawed over the price and sometimes refused to buy. The transactions didn't suit him and they didn't suit me, so I decided to remedy matters.

I am located but a short distance from Baltimore and I reasoned that if I could ship my eggs to the market in that city, I could get two cents more a dozen for my eggs and get away from the tender mercies of the retail grocer. The better price, I figured, would pay the express and packing and a little more. But I didn't have the eggs except in the spring months. So I decided to increase the size of my flock. But at the end of another year I was only independent of the grocer and little better off financially.

It was then that I really did some hard thinking. Up to that time I had kept mixed chickens and naturally they laid mixed eggs—some white, some brown, some big, some small. I began to watch the New York City market quotations and observed that hennery white eggs brought from 5 to 10 cents more per dozen the year around than the best mixed fresh eggs. I determined to have nothing but white eggs from that time on. I sold some of my mongrel stock and bought Single Comb White Leghorn day-old chicks at 12 cents each. I raised about 150 pullets. I still had to ship mixed eggs at times because I couldn't always make a case of selected whites. But in the spring I bred from the pullets—usually an unwise thing to do, and by fall had more than 400 laying Leghorn hens and pullets. Now I have between 400 and 500, which seems about the right number for me to handle efficiently. By proper management, I am able to ship at least one case each week during the year and from four to six cases in the spring months.

A few things are important for success. Uniform eggs bring better prices and only uniform hens can produce uniform eggs. All eggs must be carefully gathered daily. Slightly spotted or soiled eggs must be cleaned with a damp cloth—not washed. Stained, cracked, small and tinted eggs must be culled out and used at home or sold in a cheaper market. All eggs, to command the top price, must be spotlessly clean, of good uniform size and must be shipped at least once a week in cool weather and oftener in late spring and summer. White eggs bring the best price in New York, but brown eggs in the same market and handled in the above manner bring prices nearly as good.

Here are the results I have accomplished: In October, 1914, when I had mongrel fowls and sold mixed eggs, I was getting 30 cents per dozen. In December of the same year the price went to 40 cents. In October, 1915, I sold white eggs in New York at 47 cents, and in November the price went to 59 cents. During the past fall—from October to January—white eggs in New York have not been below 53 cents, and one shipment brought me 68.

I am feeding and housing my present flock of Leghorns exactly as I cared for my mongrel stock. They cost me slightly less for feed. But even though they cost me more, I could afford to keep them, because of the higher price which I can get for the uniform eggs.

Labor Saving Tools in the Poultry House

ELIZABETH O. JEAN.

I have three hen houses, one chick house and several coops. All these must be cleaned often and I have it to do. Certain tools right at hand, without losing time hunting for them are requisites that pay. Italian laborers getting stones from our woods left several shovels behind. I have, therefore, a shovel in each house. Two or three old whisks hang near at hand. I use these to clean out refractory cracks and brush nest boxes before spraying. I find a hoe a good scraper for droppings-boards or cement floors. A broom assists in making a neat job after the scraping process is over. A strong bushel basket receives the shovelfuls of manure or littter. This is emptied on a wheelbarrow and finally all finds its way to a protected "dirt pen" and is, after a time, hauled to the fields.

For spraying nest boxes, I use a little tin arrangement that has contained lice killer. It holds only a pint or so, but is very convenient for small jobs. When your kitchen fire shovel gets shabby, replace it and hang the old one over your barrel of ashes in the hennery. We sift the coal ashes to save the good coal and have the ashes for use on the droppings-boards and coop floors.

One end of my largest house is tightly screened and this I call the feed room. Oyster shell, grains and beans are kept there. All feed is kept covered. The floor is cement. In this feed room hangs a small cupboard, originally a soap box. In this may be found a little sweet oil and coal oil ready for the chicken that dares sneeze or have a cold in its eye. There is also some permanganate of potash. A small pan of grease is here, for all hens after recovering from broodiness are greased to eradicate lice. I keep staples, a few long nails, a hammer and other necessities in this "medicine closet," for so I call it. On the outside of its gray-painted door appears this sign: "Free Dispensary for Hens." Its original purpose has not been fulfilled because the poultry has been wonderfully healthy.

Maryland.

A Wheatless Egg-Laying Ration

With wheat so high, poultrymen will be interested to learn that on the United States Department of Agriculture experiment farm excellent egg-laying results were secured with a wheatless ration. Thirty Leghorn pullets to which this ration has been fed for 1½ years produced an average of 147.3 eggs per hen for the pullet year. This compares favorably with egg yields secured on other rations containing wheat, and therefore more expensive. This pen, moreover, during the first 16 weeks of its second year has averaged 28.5 eggs per hen, 17.5 eggs per hen being produced in March.

The same wheatless ration has been fed since last November to a pen of Buff Orpington pullets which have laid 53 eggs per hen in 20 weeks, and hold the highest egg record of any of the large feeding pens of pullets at the farm this year. Two other pens, however, are less than one egg per pen behind this pen.

The scratch mixture part of the ration was 2 pounds cracked corn and 1 pound oats. The dry mash consisted of 3 pounds corn meal and 1 pound beef scrap.

The scratch mixture was fed sparingly so that the hens ate about equal parts of this mixture and of the dry mash. The total grain consumption of feed for the year was 52 pounds, of which 26 pounds was scratch mixture. Throughout the year it took 4.6 pounds of feed to produce a dozen eggs.

This scratch mixture, with wheat $2.57, cracked corn $1.35, and oats 79 cents per bushel, is 49 cents per hundred pounds cheaper than the regular mixture of equal parts cracked corn, wheat, and oats. Another mash which is slightly cheaper than the one used, is made of 4 per cent. each bran and middlings, 26 per cent. beef scrap and 66 per cent. corn meal.

If the wheat is omitted from the ration it is very essential to feed a considerable proportion of beef scrap in the mash, but with present prices, beef scrap is one of

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the cheapest poultry feeds, considering its high protein content.

These experiments, the specialists say, prove that wheat is not essential in an egg-laying ration and that excellent results can be secured by using corn and oats as a scratch mixture provided this is fed with a good mash containing 25 per cent. beef scrap.

Keeping Rats from Poultry

Rats are often a source of annoyance and loss to the poultryman who has small chicks. The best protection is exclusion of rats from the brooder house.

At the Pennsylvania State College poultry plant the brooder houses are removed a considerable distance from other buildings. From the middle of December until the chicks are placed in the brooders, neither feed nor water is kept anywhere near the brooding quarters. Lumber piles or other hiding places for rats are cleaned up and all the brooder houses are raised a foot from the ground, thus affording no hiding places.

As a further protection, ¾-inch poultry netting made of No. 20 wire is tacked over the floor supports before the floor is put down. This netting extends a short distance up the side of the house. With this protection, and the added precaution of housing chicks in the evening and not turning them out too early in the morning, the college experiences little difficulty with rats.

Bone for Chicks

The most important problem confronting the poultryman during the next two months is to keep the chicks growing satisfactorily. They must not only be kept alive, but also fed during their early life in such a way that they will develop a good, rugged skeleton, with large bone and frame. With this foundation they can later be fed so as to put on a maximum amount of flesh. The New Jersey Agricultural Experiment Station recommends the feeding of dry granulated bone in order to secure proper growth. It can be purchased for from $2 to $2.50 per 100 pounds, and carries about 25 per cent. of protein and 23 per cent. of phosphoric acid, in addition to considerable lime. It should be fed from the time the chicks are a week old until they reach maturity, and should comprise about 10 per cent. of the dry mash. Ten per cent. of meat scrap should be added to all growing mashes, as this contains, in addition to protein, a considerable amount of bone. Fish scrap is very high in bone, and if available, can be used to replace in part the meat scrap and the granulated bone. The great advantage of bone is the high phosphoric acid content, which not only goes directly into the formation of bony tissue, but also acts as a digestive stimulant, increasing the bird's power of digestion and assimilation.

Many complaints have reached the Pennsylvania Department of Agriculture regarding fowls losing their feathers in patches, particularly about the head and neck and on the back. J. T. Campbell, poultry expert of the department, says that this is due to the work of the depluming mite, a little insect that works at the base of the feathers and causes them to break off. Examination of the base of the feathers around the bare spot with a microscope will reveal the cause.

This can be remedied by washing the birds affected in a very strong solution of laundry soap and warm water. Washing the affected parts with a solution of some coal tar disinfectant, or a standard solution of lime-sulphur, will kill the mites and the new feathers will probably not grow in again until molting time.

Cover Crops in the Corn

OUR EXPERIENCE POOL

We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1222, JULY 1.—Tell us your experience with late summer seeding of alfalfa. How did you prepare the land? What form of inoculation did you use? How much and what kind of lime did you apply? How much seed did you plant per acre? What do you consider the essentials for success?

TOPIC No. 1223, JULY 15.—What plan have you found best for filling the silo? Do you have your own outfit, co-operate with neighbors or hire a traveling one? How many men do you use and how do you place them? Tell us any good ideas you have found in doing this work.

TOPIC No. 1224, AUG. 1.—What farm equipment do you use for preparing the ground and planting wheat? Do you disk ground before plowing? How deep do you plow and do you roll after planting? Tell us some things which will increase next year's crop other than better seed and fertilizers.

G. H. D., Meetze, Va.—A mixture of one bushel of winter rye and 10 pounds of Crimson clover per acre sowed in a broadcast seeder ahead of the cultivator when the corn is given its last working has proved to be the best cover crop which I can sow in my section. Usually I seed this crop about the middle of August or even the first week in September if the season is wet and backward. I always cultivate my corn with one-horse harrow cultivators after the grain is so large that it can no longer safely be worked with 2-horse riding cultivators. I sow the cover crop ahead of one of these cultivators, which throws enough dirt to well cover the seed.

In fields where I produce ensilage corn, the grain crop is removed in plenty of time so that the cover crop will furnish good late fall and early spring pasturage. In other fields where the corn is shocked and husked in the field, unless plenty of labor is available or unless the corn crop is very small, the chances are that the grain and fodder will not be removed from the field in time to graze it much in the late autumn. The rye-clover mixture is sure to result in a fairly good stand if the ground is well drained and fairly fertile. Even though the clover winter-kills or does not germinate well, due to late summer droughts, the winter rye is absolutely dependable. In sections subject to droughts about seeding time I would recommend that 5 or 6 bushels of rye be sown in order to assure an excellent stand. The rye and clover crop may be pastured in the spring and then turned under so that the field may be re-cropped to corn or else it can be converted into hay or ensilage where the stand of forage justifies such operations. Care must be exercised to cut the hay at just the right stage so as to avoid the danger of injury to the live stock which results where Crimson clover hay is cut too late and the coarse hairs or bristle-like beards accumulate in the stomach and digestive organs of the farm animals, often resulting in serious mortalities.

My experience is that timothy, red top, orchard grass or meadow fescue may be sowed with winter rye alone in the standing corn by the above method and a good stand of grass secured particularly where clover is seeded the following spring. Although many oppose the use of rye as a nurse crop, I have always liked the crop because it provides adequate shade and protection for the grass seedlings and yet does not crowd them out as often occurs in the case of other grains used as nurse crops. The stand of rye is never so thick nor does it stool like wheat and hence in my locality I favor it as a nurse crop, particularly where I am working for grass via the cover crop method of seeding.

I aim to cultivate my corn as often as is necessary to keep the soil well mulched. Usually in a normal season I work the crop three times with riding cultivators and two to three times with one horse, walking harrow cultivators.

E. J., State College, Pa.—I always try to sow a cover crop at the last cultivation of the corn, and find that Dwarf Essex rape is very satisfactory for the purpose. I sow it broadcast, 5 to 8 pounds per acre. Sown at this time it comes in just right for late fall pasture and is one of the best forage crops for cattle, sheep or hogs. In fact, crops of this kind help to reduce the farmer's grain bill very considerably. Then, too, it is valuable for the effect on the soil when turned under the following spring, so that "two birds are killed with one stone," by making a sowing of this kind. I have never tried to get a field in sod in this way, but have never had any trouble in getting good pasture by the time the corn is cut.

If "tillage is manure" with any crop it certainly is with corn, and I cultivate just as much as possible. At present I have only cultivated once (May 25th), but I will cultivate it at least four times yet.

J. J. S., Glen Riddle, Pa.—We tried once to sow a cover crop at the last working of the corn, but it was a failure. We seeded about 10 pounds of Crimson clover just previous to going through the corn the last time. Very little of it grew, but we think we now know the cause why. The seed was covered too deep. Our neighbors sow their Crimson clover in the corn after cultivating it the last time and they generally have a good catch.

This year we are planning to sow rye in our corn, as the field we have it in is inclined to wash some. One lesson we have learned regarding rye is not to allow it to get too high before plowing it down, if needed for a green manure crop. Best results are had if it is turned under before it gets more than one foot high. If allowed to get higher it makes kind of a straw mattress under the surface and allows the upper soil to dry out very quickly. One year our corn crop was a failure on this account.

Plant Pumpkins in the Corn

Pumpkins planted in corn furnish a cheap, appetizing stock feed. They should be planted by the latter part of June, putting a pumpkin seed in every sixth hill and in every missing corn hill. They will affect but slightly the stand of corn and a large amount of fine stock feed can be raised if the corn is not intended for the silo or to be harvested with a binder.

Pumpkins are relished by cattle and hogs. Fed, uncooked and with the seeds, they act as an appetizer and corrective of digestive troubles. Two and one-half tons of uncooked pumpkins are equal to one ton of corn silage to cattle. It has been found that 273 pounds of grain and 376 pounds of pumpkin produced 100 pounds of pork, the pumpkins saving 100 to 150 pounds of grain. The low cost of growing, ease of keeping, large yields, and the tonic qualities of a succulent feed available when succulent hog feeds are scarce make pumpkins well worth while.

How to Control Potato Bugs

Bordeaux mixture, made of 4 pounds of copper sulphate, 4 pounds of quicklime and 50 gallons of water, is used by potato growers to ward off fungous diseases. If Paris green is added to this material, it will kill the bugs within a day; and, when arsenate of lead is also mixed in, the poison is effective often for several weeks after applied to potato vines. The Ohio Agricultural Experiment Station advises the use of these compounds soon after potatoes come up and again about two weeks later. Sometimes a third application ten days to two weeks after the second is necessary. Early in September the second brood of beetles appears, and the treatment must be repeated then and about two weeks later. On young vines 50 gallons will be sufficient to spray an acre, but when the vines are large two or three times this amount is necessary.

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Treating Wheat or Oat Stubble Fields

A. E. GRANTHAM

To utilize to the best advantage land from which has been removed a crop of wheat or oats is a feature of farm management that is well worth consideration. Where the fields are fenced hog-tight it is a good plan to allow the brood sows or shoats to have full run of the stubble land. In no other way can the waste grain be saved so easily; although great care may be exercised in harvesting there is considerable grain left in the fields. If the field has been seeded to clover, this combined with the waste grain makes an excellent combination for developing thrifty pigs. In the Middle West this practice of pasturing the stubble land with hogs is quite common. Cattle are also turned into such fields as soon as the wheat or oats is stacked or threshed. If the soil is in a good condition of fertility the clover is often as high as the stubble at the time the grain is cut. In such cases it is not best to pasture too heavily, but it is generally conceded that the clover should be kept from coming into blossom too freely the first season. This is a point that the agricultural experiment stations have not fully worked out, viz., whether allowing the clover to come to blossom the first year affects the yield the succeeding season.

Many farmers in lieu of pasturing generally clip the stubble fields later in the season in order to get rid of the weeds and to prevent the clover from becoming too rank. It is also a mooted question whether the mowings should be removed or left on the land. Much depends on the thickness of the growth and the character of the season. If the weather is damp and warm the heavy swath may tend to smother out the clover. On the other hand, a light swath may be left without injury, even with benefit, if the weather is dry and hot, as the cut weeds and clover form a slight mulch or protection from the hot sun. In cases where the grain was not seeded to grass or clover it seems a waste of land not to follow with another crop immediately.

In the latitude south of Philadelphia wheat may be followed by a crop of cowpeas or soy beans for hay if the grain is stacked promptly after cutting. On most soils it will be necessary to plow the land, but on light, loamy land the stubble may be disked and the peas or beans seeded. The following plan may be adopted in seeding peas or beans on farms where there is sufficient horse power. As the wheat or oats are being cut a disk or cutaway harrow is driven immediately behind the binder; just behind the disk follows the grain drill which sows the peas or beans. This method permits the sowing of the legume at the time the wheat is cut and no time is lost if the stacking or threshing is delayed. This plan works well if the wheat is to be followed by wheat or another fall sown crop. The peas will show a marked effect on the following wheat crop if turned under or even if cut and removed for hay. Where clover failed to come with the wheat, this method of utilizing the land serves two purposes, viz., increasing the forage supply and improving the fertility of the soil.

If it is desired to follow the wheat or oats stubble by corn the next year, more time may be taken to fit the land and seed it to Crimson clover or Sweet clover. For the section mentioned above the clover may be seeded from the first to the twentieth of August. This will give a good crop of green manure to turn under in the spring for corn. If the seeding is delayed a mixture of rye and vetch may be used. Three pecks of rye and 15 to 18 pounds of vetch is sufficient seed for an acre. With clover, 15 pounds of the Crimson should be seeded to the acre, and about 20 pounds of the Sweet clover, or a mixture of equal parts of these two amounting to 18 pounds may be used to advantage. Whether one shall use these winter legumes or the peas or beans will depend on the rotation he wishes to follow.

On light thin land in the Eastern States it is not desirable to sow cowpeas or soy beans as a catch crop after wheat or oats if the land is to be followed by corn the following spring. The reason is that these crops are killed by the frost and much of their plant food value is lost through decay and leaching during the open winters. Crimson clover or vetch makes an ideal winter cover crop for conserving fertility and for providing organic matter. If peas or beans are seeded on stubble land they should be sown at the rate of 6 pecks per acre, preferably with a grain drill. Some fertilizer, chiefly acid phosphate, should be applied, as the preceding grain crop generally draws quite heavily on the available fertility in the soil.

There are cases where the Red clover seeded in the wheat in the spring failed to make a stand, and it is desired to keep the rotation intact. The wheat or oats stubble may then be plowed and fitted as for Crimson clover and vetch but Red clover used instead. This is one of the most dependable methods of securing a good catch of Red clover. The fact that the soil must be well prepared and a liberal quantity of commercial fertilizers applied should not be lost sight of.

In sections south of Pennsylvania the season is long enough to allow a fair hay crop of cowpeas or soy beans if prompt methods are used in preparing the land. To leave stubble land idle is to lose a very large part of the growing season for crops. In Delaware and Maryland the wheat is often cut in June, leaving three months and a half until frost. During this period the land should be growing a crop that may be used either for feed or soil improvement. If ordinary Red clover can be grown successfully when sown with wheat or oats as a nurse crop the best use to which the stubble fields can be put is pasture, especially hogs, as they eat the clover less closely than cattle. However, if clover does not come readily by the usual method of seeding care should be taken to sow some crop for green manure. This means improved soil conditions to such an extent that Red clover may be more readily and more economically grown.

Buckwheat

Buckwheat may be planted any time up to July 15th, but not later. It may not only be used to advantage following a failure of winter wheat, but may be planted after an early potato or hay crop, according to W. E. Hanger, of the Ohio College of Agriculture. It is also an aid to honey production. The Japanese and Silver Hull are good varieties. The rate of seeding is three to five pecks per acre. The planting is done with an ordinary grain drill, but care should be taken to see that the seed is drilled only deep enough to be covered. The crop may be cut in September. An average yield is from 16 to 20 bushels per acre.

Seed buckwheat this year is exceedingly high and difficult to obtain. Dealers report an unusual demand for it.

Farmers living near a concrete road like this have the benefit of 365 days hauling and ease of getting to town. This concrete road is on the Baltimore Pike in Chester County, Pa. Built by the State Highway Department. Wm. D. Uhler, Chief Engineer, Harrisburg, Pa.

Move Your Farm Into Town
By Having Concrete Roads In Your Neighborhood

WHEN your farm is near a concrete road you are practically as convenient to town as though you lived there. You can drive in whenever you want to, so can your wife and children. The road is passable at all seasons of the year and for many years.

A concrete road is like a concrete bridge or a concrete silo: once properly built it grows stronger with age and is less affected by the elements. Heat, frost, rain and snow do not injure its surface.

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It would take a long time to build such a system with current road funds. An annual tax levy of a few cents per acre will finance a bond issue large enough to build the whole system at once. In this way you can pay for the roads while you are using them, which is a good business proposition.

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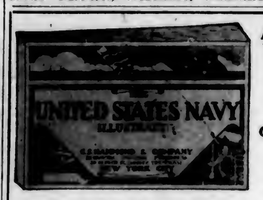

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The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

JULY 1.—We hear a lot said about canning, but what about making jelly? Tell us in not more than 250 words how you make the jelly which your family seems to like best. What sized jelly glasses do you find best and how do you cover them?

JULY 15.—What are you doing toward making an exhibit of "women's work" at the fair this year? Tell us in not more than 250 words what steps you take to win, what you make, what kind of containers you use and how you arrange it to present the most attractive appearance.

AUGUST 1.—Tell us three unusual ways you use cucumbers, squash, carrots or okra in cooking for your family. What ways do you prepare them, either alone or in combination? Tell us three ways for one vegetable or a different way for three vegetables.

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

Disposing of the Spring Cockerels

M. G. F., Dryden, N. Y.—When the young cockerels get to weigh about 2½ pounds each I separate those intended for market and feed them all they will eat of cracked corn for a week or ten days. I reserve quite a number of the best marked ones for breeding purposes, as at this age one can't tell which really are the best. From these the ones not wanted are later used on the table or are canned for future use. As the hens stop laying some of those are also canned.

When those intended for market are ready I take to our nearest city market, alive or dressed, according to the number, and also how busy I am. When I dress them I prefer, however, to sell to restaurants and hotels, as they pay more and our big Orpingtons are much liked by this trade. We fast them 12 to 18 hours before killing, giving them all the water they want. Restaurant trade does not want them drawn, and this saves much time. We stick them in the brain and then sever the jugular vein, when they can be dry picked, if properly done. After picking I dip them into hot water a moment, then plunge them into very cold water to cool.

Some years when I do not have too many I dress and draw them and sell to private customers, a few at a time as wanted. I get more for them this way, but it takes longer to dispose of them.

I always save the best feathers for cushions, pillows, etc. I have a large bag of these on hand now that I shall sell.

For canning, if one has not a steam pressure canner, one can use a wash boiler or tin bucket tightly covered, and boil the jars steadily for three hours with tops and rubbers in place, tightened down fast. Pack the raw meat into sterilized jars cold, with one teaspoonful of salt to each pint jar, two to a quart jar. Add no water as the meat makes its own juice. If the meat is not entirely covered with juice it keeps just as well. Don't lift the cover, but seal at once, if possible. With my pressure canner I cook the jars 90 minutes under 15 lbs. pressure.

Mrs. J. P., Port Huron, Mich.—I always dispose of my spring cockerels when they have reached the desired weight, 2 or 2½ pounds. These make fine broilers. I always dress my fowls before marketing them, thus saving the feathers and somewhat enlarging the income. I dry the feathers for pillows or cushions.

When hatching time is over I usually sell all males. If I have one or more that I wish to keep I take them away from the hens. Killing chickens is rather hard for some folks. I always take the fowl by the wings and feet and lay its neck over a block of wood and use a good, sharp ax or hatchet to cut its head off. Immediately I hang the chicken up by the feet so it will bleed well, before scalding. Never have the water too hot, as it causes the skin to peel with the feathers. I always hatch my chicks in an incubator, setting it about April 15th.

Mrs. W. R. B., Blanchard, Pa.—There is, to my mind, only one way to dispose profitably of the spring cockerels, and that is by transforming them into capons. It is very easy to produce a capon weighing 8 to 10 pounds; and with a little extra feed they can be kept a few months longer than you would by selling the young males for "spring" chickens, and thus realize a handsome profit. Just as soon as the hatching season is over I remove the males from the company of the hens. Any surplus eggs that I have at this time I preserve in water-glass, and I find that the infertile eggs keep much better than the fertile ones. If I have an especially fine cock which I wish to keep for the next season I confine him in a roomy pen; the rest we kill and eat. I do not know if we have the "best" way to kill a chicken or not. We chop off their heads with a sharp ax, and we find it a humane method that has always proved entirely satisfactory.

I always save the feathers and use them for filling cushions for the porch and house. They can be sold readily for a like purpose if you have more than you want for your own use.

The greatest reward that I reap from early hatches is the large percentage of healthy chicks that I can raise to maturity. The early chickens are the ones I find, too, that bring the fancy prices on the market.

Mrs. S. M. J., Kentwood, La.—When my early hatched chicks are quite small I select a few of the very best to keep and sell for breeders. The rest I feed a more liberal and more fattening ration until they are ready to market for broilers. Later in the season I cull out the undesirable breeders, also any of my early pullets which do not seem promising, and sell them for frying. I kill or sell all males except those I wish to keep another season, and separate these, with the exception of one, which I keep penned with a few of my largest old hens to get fertile eggs for late hatches. I like to have a few broods of chicks come off occasionally all the year. This keeps our table supplied with friers and enables me to carry to a sick or invalid friend a "quail on toast" occasionally when visiting.

When I pick a fowl of any kind I drop the feathers in a sugar sack. This I tie and hang in a light, airy place for a few weeks, when I can use the feathers for stuffing pillows. I mix all kinds of feathers for home use. I think they give better service, although this lowers their value for market.

I have an old anvil in my yard, on which I pound up all the broken crockery, glass and oyster shells for my fowls. My birds will leave the grit I buy and come to the anvil to pick and coax for the pounded crockery.

I take all old nest boxes out in the open and burn the contents. If mites appear I scald the roosts, boxes and walls with a strong tea made of cedar boughs and repeat once a week as long as necessary.

X. Y. Z., Hartly, Del.—The best disposition to make of the surplus cockerels is to use them for meat for the family. After eating heavy meats all winter and spring, the advent of spring chicken on the table is hailed with delight. For those who raise them they are not a luxury, and should appear on the table at frequent intervals. Young chickens can be served in so many different ways it takes a long time to tire of them.

It is better to dispose of the old male birds now, unless they are kept over for another breeding season. They are a source of annoyance to any young birds and fertile eggs will not keep nearly so well as non-fertile ones.

The neatest way to kill a chicken is to stick it in the roof of the mouth, let it hang until done bleeding, then pick and dress, but the quickest way for the woman of the house is with the ax at the chopping block.

The few feathers that are worth saving should be thrown in baskets until enough are had for a sofa pillow then wash well in lime water and hang on the line in bags until dry and fluffy.

The early hatched chickens are stronger than those hatched late and are not so susceptible to the ravages of lice and diseases as the late ones. But don't think you must sell off all the early cockerels—your own family needs them.

Mrs. E. C. T., West Chester, Pa.—We dispose of our cockerels as soon as we can after they can be distinguished from the pullets. We sell them as young fryers to people who take all our other farm products.

When killing our chickens we always stick and dry pick them. This gives them a good appearance when dressed and we think is quicker done than scalding them. There are two essentials in doing this work properly. One is to stick the bird in the right part of the brain, and the other is to have them bleed freely. A knife with a blade about 2 inches long is best for this work. The chicken should first have both feet tied together and hung with head down. Taking the knife in the right hand the head is held between the thumb and forefinger of the left hand. A cut is made just back of the bony part of the head, severing the two main blood vessels of the neck. In order to render the chicken insensible and make the feathers come out easily the brain is stuck also. This is done by starting the knife into the side of the chicken's head slightly back of the corner of the mouth, so that it will pierce the brain about the center of the head and back of the eyes.

If everything has been properly done the feathers will come out very easily. The breast should be picked first and then the back. Tail and wing feathers should be left until the last.

Cold Pack Canning

Of recent years a great deal has been said and written regarding the cold pack method of canning. Some women have been inclined to disregard this process as only a new-fangled idea, while others have confused it with the cold water method sometimes used in canning rhubarb, gooseberries and other highly acid fruit. The fact that it is an easy and successful way of canning, however, has been proved by thousands of boys and girls who have used it for putting up all kinds of farm and garden products in their gardening and canning clubs under the direction of the U. S. Department of Agriculture. The one period cold pack method simply means that the products are first blanched, second dipped in cold water, third the hot jars are filled, fourth the contents are cooked after they are packed in the jars or cans, and fifth the sterilizing is done after the jars or cans are sealed.

Various types and makes of canning outfits are on the market and all of them will give satisfactory results if the directions are carefully followed. They may be roughly classified as the hot water bath outfit, the water seal outfit, pressure cooker outfit and the steam pressure outfit. Where only a small quantity of fruit or vegetables, however, are to be put up and where time is no material object the same process can be used by taking advantage of equipment which is already in the home. The ordinary wash boiler will make a satisfactory canner, or a 50-pound lard can or any other vessel which will hold water and has a tight cover can be used. It is essential, however, that no matter what is used that a false bottom of lattice work, or heavy wire netting be placed in the bottom of the canner so that the jars do not come in direct contact with it, as they will be cracked by the action of the boiling water.

Products canned by the cold pack method retain their natural color, shape and flavor better than when done in an open kettle. The principle of all canning is to kill the various yeasts, molds and bacteria which cause food to spoil, and when this has been done the products will keep indefinitely.

After preparing the vegetables or fruits for canning, such as shelling the peas, stringing the beans, paring the apples, etc., they should be blanched. This is a short cooking process which is done by placing the product in a cloth bag or strainer of some kind and allowing them to boil quickly under water for a certain specified time as shown by the canning time table. The object of this is to eliminate objectionable acids and acrid flavors, reduce the bulk of greens and make it unnecessary to use the exhaust period and intermittent process. As soon as they have been blanched the required time they should be immediately dipped into cold water for about a minute. This will harden the pulp, set the coloring matter and make them easier to handle and pack into jars which should have been previously sterilized.

A great many women who can products at home have been led to believe that it is necessary to use a canning compound for successful results. If the fruits or vegetables are carefully blanched, cold dipped and thoroughly sterilized, any foreign preservative is unnecessary. Many of the compounds recommended are harmful to the health, as they have been known to contain as high as 95 per cent. boric acid. If the canned goods are to be offered for sale it is especially important that no preservative is used, as in that case they would not conform with the state and national pure food laws.

In the July 1st issue we will give a number of canning receipts for use with the cold pack method.

Cost and Value of Electricity

HOMER G. WEBSTER.

Before making the change from kerosene lamps to electricity I considered all farm lighting outfits that I could get in touch with from the standpoint of safety, convenience and economy.

I chose electricity in preference to any other method, for the reason that I think it comes nearer to satisfying the first requirement—safety. Also it can be used for purposes other than lighting, such as operating a vacuum cleaner, flat-iron, milking machines, etc.

After deciding on electricity I chose an outfit that is very compact, the engine and generator are all in one, and the engine is equipped with a self-starter and an automatic device which stops it when the batteries are fully charged; therefore it is very convenient and easy to handle. Also, the engine operates on kerosene, which lowers the cost of operation considerably.

Our lighting system is composed of 25 lights, a storage battery of 16 cells and an engine and generator. The batteries fully charged will last about ten days for ordinary lighting purposes. I charge them, however, about once a week, which requires the engine to operate about four hours. Having kept account of all fuel and lubricating oil used, I find that it costs me less than a dollar a month. As the interest on the investment and depreciation will amount to about $40 per year, I figure the total cost for lighting my house will be approximately $50 annually. After three months experience with electricity I would hate very much to have to get along without it.

Pennsylvania.

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8293.—Ladies' waist. Cut in sizes 34 to 42 inches bust measure. Fronts and back are in one piece, sleeves may be long or short.

8315.—Boys' rompers. Cut in sizes 2, 4 and 6 years. Waist has front yoke with tucked back and smocked fronts.

8295.—Misses' dress. Cut in sizes 14 to 20 years. The dress has a plain waist and a three-gored skirt.

8313.—Girls' dress. Cut in sizes 6 to 12 years. Long or short sleeves may be used.

8311.—Ladies' waist. Cut in sizes 34 to 42 inches bust measure. The waist is a separate girdle.

8302.—Ladies' apron. Cut in sizes 36, 40 and 44 inches bust measure. The short sleeves may be made with or without the cuffs.

8305.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in two pieces.

8288.—Children's pajamas. Cut in sizes 6 to 10 years. Any little child will be pleased with this garment.

8294.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is also suitable for flouncing.

8318.—Ladies' house dress. Cut in sizes 36 to 46 inches bust measure. The dress has a three-gored gathered skirt with a slightly raised waist line.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA

Saving the Food Increase

(Concluded from page 227)

PEACHES.

Peaches may be dried either with or without the skins. If with the skins, wash and wipe dry, cut in half to remove pits, spread on pans or trays one layer thick and expose to rays of sun or to oven heat and treat as directed for apples. Peaches must not be left until overripe, as there is greater difficulty in drying.

GREEN SHELL PEAS AND BEANS.

When peas and beans are green and just about right for cooking, pick and shell. Dip in boiling water for about one minute, chill by dipping in cold water, spread on pans or trays one layer thick and expose to rays of sun or to oven heat and treat as directed for apples. Green shell peas and beans soak up and cook much more quickly than mature dry peas and beans, and have a somewhat more delicate flavor and are more nearly like the fresh vegetable. Any of the varieties of the bush and pole beans such as are used for green shell beans may be used.

GREEN STRING BEANS.

Method I.—When just about right to cook as string beans, pick, wash, wipe dry, snip ends and string; spread on pans or trays one layer thick and expose to rays of sun or to oven heat and treat as directed for apples. Care must be taken to prevent string beans from molding while drying. If they are dried out of doors, the process may need to be hastened by using the oven.

Method II.—When just about right to cook as string beans, pick, wash, wipe dry, string, steam about one-half hour. Remove, spread one layer thick on pans or trays and expose to rays of sun or oven heat and treat as above.

CORN.

Method I.—Corn must be gathered for drying neither overripe nor underripe. Husk and remove silk. Pour boiling water on the ears, allow to come to a boil and boil four to five minutes. This sets the milk. If desired, a little salt may be added to the water in which the corn is blanched. Remove from the boiling water, cut from cob and spread on pans or trays; expose to rays of sun or to oven heat and treat as directed for apples.

Method II.—Husk and remove silk. Put the ears of corn into boiling water and allow to stand over the fire just until the water begins to boil. Remove from water, split the grains with a sharp knife, and slice them off thin and spread on pans or trays; expose to rays of sun or to oven heat and proceed as above. Care must be taken in preparing and drying corn to protect it from flies. Corn draws flies more than any other vegetable or fruit.

PUMPKIN.

Pare and core pumpkin. Cook as for pies. Spread in thin layers one-third to one-half inch thick on shallow pans. Expose to rays of sun or to oven heat and treat as directed for apples. Pumpkin dries most satisfactorily in the oven.

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Looking Over "Penn State"

A few days ago we made a visit to the Pennsylvania Agricultural College, located at State College, Center Co., Pa. We read in various places of the work of the College, get bulletins from them from time to time, and hear what others tell us, but not until we see the place in full swing do we have an adequate idea of what it all means. The College is now actively farming somewhat over 1700 acres of land. Although this is a backward spring and State College is not located in the warmest part of Pennsylvania, everything looked good. When all the stock is out on pasture and everything is green and growing things look different from what they do during the winter when the buildings and equipment are necessarily striking features.

What a pity it is they do not have more and better buildings for some features of the college work. If all the taxpayers were able to see the results the College is accomplishing in spite of their poor equipment, we have not the least doubt that the demand for adequate facilities could not be sidetracked as it generally is. They deserve better and will eventuallly have it, but why not now? It must be because we farmers have not presented a big enough petition to the Legislature for it.

An automobile trip over the College farm presents an ever changing panorama of object lessons, the vital points of which can be applied wherever similar crops are grown or live stock raised.

Going in the machine down back of the dairy barn to the big pasture field we passed the experimental orchard of Dr. Stewart. Men and teams were busy putting on the codling moth spray and it did not need an expert horticulturist to tell that the trees had been accustomed to receiving the best of attention. We can read in the College bulletins of the various effects of clean culture, cover crops and sod and mulch treatment in this orchard, but we do not appreciate the full benefit of these results until we have seen the trees themselves. The difference in growth between the different plats is self-evident.

Contentedly grazing in a 175-acre blue grass pasture were the two beef breeding herds and a large flock of sheep. The herd of Aberdeen Angus, of which there are 50, and the red and white Short-Horns, of which there are 40, have been giving good account of themselves as a breeding herd for the last five years at the College. This year they dropped 100 per cent. normal calves after wintering on corn silage and cotton seed meal, and Prof. Tomhave pointed out several big, fat ones which looked so promising that it is his intention to fit them for show.

There are now about 250 sheep on the College farm, but with all their protection they have not been immune from the ravages of stray dogs. Only a few nights before our visit three sheep had been killed and four were still under treatment.

One of the most interesting parts of the stock farm was the hog quarters where 160 animals of all ages are comfortably housed. Large lots and colony houses are used for the summer quarters, affording excellent opportunity for the use of plenty of forage crops.

There are 50 horses on the farm now, including the pure-bred Clydesdales recently purchased. Fifteen steers are also being kept, besides the large dairy herd, and 5000 chickens of all ages.

Another interesting feature of the visit was a trip over the 20 acres which are made up of the 144 plats comprising the fertilizer test. Possibly there has been no other one thing which has given Pennsylvaia State College as wide recognition as have these plats which have now been running for 35 years on this one experiment. It is the longest one of its kind in the United States and it is only surpassed by one in Europe, so that the results which they have obtained can be looked upon as authoritative for soils of similar conditions. Corn, oats, wheat and mixed clover and timothy hay each for one year in the order given have been grown in rotation for 35 years on these acres. There are 36 tiers of 4 plats each in this experiment and each tier has had a different method of fertilization during all of this period. The College Bulletin No. 146, about to be issued, is interesting reading and gives full details of the returns from each plat. It is more interesting, however, to actually see them and note the differences, which are clearly apparent to the eye as one travels across them.

Purebred Clydesdale Mare and Colt at Penna. State College. (See article on page 238)

Twenty acres are also devoted to experimental work of the horticultural department, for vegetables and small fruits. A fair sized acreage of overhead irrigation has been installed and numerous plans and plants are being tested in various ways.

One of the busiest places about the College these days is the mailing room. The extension department under Mr. M. S. McDowell has had to increase its force to keep up with the demand for literature, etc., and also to get out new, timely bulletins, circulars and posters to meet the conditions which now exist.

On the other hand, one of the quietest features is the shortage of students at the present time. Seven hundred have left within the past few weeks to work on farms or enlist in some branch of the U. S. service. Two units (70 men) volunteered for hospital and ambulance work and while the writer was there they received their first notice of mobilization at Allentown, Pa. Some classes which had 30 and 35 members now have only 5 or 8 report for lectures. Those who have gone on the farms, however, have to report to the College what they are doing each day in order to retain their class standing.

A trip to your state college, such as we took, will cost you a little money, also a little time. When you get there, however, you will find a group of men who will be glad to see you, do anything they can for you and show you everything. When you get back home things will have a different look, work will go easier and you will be filled with a new enthusiasm for the farm and things agricultural.

T. H. W.

What We Are Asked

Spray for Tomatoes.—T. G. W., Pennsylvania, writes: "What spray can we use on tomatoes to prevent them from rotting before they ripen? We have trouble with them when they commence to ripen by beginning to rot at the end and sometimes the whole inside will be decayed when the outside skin seems to be all right."

The best general spray for all sorts of fungous disease of plants is Bordeaux mixture. This is made in different proportions according to the nature of the plants on which it is used. The mixture I use is 5 lbs. lime, 5 lbs. copper sulphate and 50 gallons of water. Slake the lime in a barrel and then add water to make 25 gallons. In another cask dissolve 5 lbs. of copper sulphate and add water to make this 25 gallons. Pour the two together slowly, stirring all the while and it is ready to strain into the sprayer, and should be used fresh, as it is apt to separate on standing. Spray tomato plants as soon as set out and every ten days until fruit is more than half grown. It will prevent fungous disease, but will not prevent the tip rot that is caused by drought and is not fungoid. W. F. M.

Milch Goats.—C. B. B., New Jersey, writes: "1. What kind of goat gives the best milk for family use? 2. How is the goat fed the year around? 3. Does the goat have to come in fresh, as a cow, every so often? 4. What amount of milk does the goat give per day? 5. What is the price of the goat you recommend? 6. Where can same be purchased?"

1. The milk from any of the milk breeds is practically the same. 2. The same as milch cows except that the feed must be kept clean and not placed on the floor. 3. Not necessary, but the doe will give a larger flow of milk every time fresh. 4. From 2 to 4 quarts. 5. Prices vary according to purity of the Swiss breeds and the desire of the seller. 6. This is the hardest question to answer. The only way to find out is to write to the different breeders or advertise.

J. C. DARST.

Chicken Lice.—R. W. M., Pennsylvania, writes: "What is the cause for old chickens sitting around sleeping all day, with head under wing, and in the course of a few weeks time dying? I have had eight do tuis in a month. What is the best kind of feed for such chickens? They don't seem to care to eat."

Probably the cause of the trouble is lice. Pick up one of the hens and push the fluff away from the vent—if lice are present they will rapidly run to other parts of the body. Dust the hens with insect or louse powder; to do this quickly and successfully hold hen head down by the feet; the wings will spread apart, or away from the body, and the lice powder should then be sprinkled liberally all through the fluff and under the wings, particularly in the joints.

Another good remedy is blue ointment. A piece the size of a pea rubbed around the vent, in a circle, will rid the hen of the pests.

If lice are not found the cause may be asthenia or going light. When this disease reaches the chronic stage it is incurable. To increase the appetite one grain of powdered gentian mixed with ¼ grain sulphate of iron will generally do the work if given once a day for three or four days. A good ration is composed of 5 pounds of bran, 1 pound of middlings, 4 pounds of corn meal and 2 pounds of beef scrap.

This is the season when lice begin to kill old and young chickens, and the quarters should be sprayed with some good insecticide. Kerosene oil, 1 gallon, into which has been dissolved 2 ounces of napthaline flakes, makes an excellent spray. This cannot be used when the temperature is below 75 degrees, as the flakes cannot be held in suspension under that temperature. Self-boiled lime water, to which is added one ounce of crude carbolic acid to a gallon, applied hot, is another good spray. Strain before spraying to prevent clogging the sprayer. Roosts, nests, cracks and broody coops need spraying throughout hot weather once every two weeks.

F. V. L. T.

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The Practical Farmer Live Stock and Dairy Section

The Baby Beef Proposition

J. HUGH McKENNEY

There are indications that the baby beef industry is becoming more popular. For a number of years the doctrine of early maturity has been preached by the institute lecturers, but the feeder clung tenaciously to his conservatism and banked confidently on the heavy 3-year-old as the ideal candidate for the block. More recently, however, other influences have been at work that are likely to be more fruitful in results. A near famine in stockers has made it almost prohibitive for would-be buyers to secure enough of these animals at a reasonable figure to leave a margin of profit on the transaction. Being, therefore, compelled to breed and raise their feeders, the age that it is possible to finish them off has come to be of vital importance.

At present there are three types of calves being used for baby beef production: (1) Calves bred by crossing a beef breed on graded dairy cows. (2) Good grades of the beef breeds. (3) Calves bred by crossing a pure-bred sire on grade cows of another beef breed.

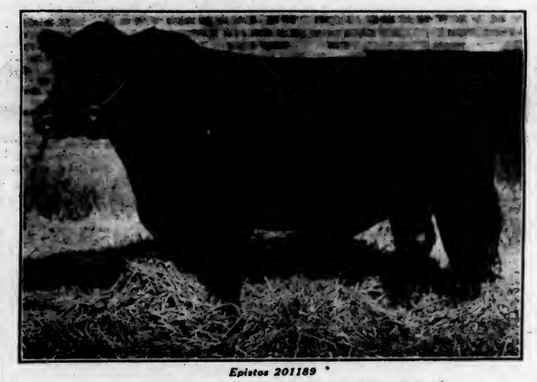
A few feeders of the first-class report satisfactory results. This is, for the most part, an effort to carry on the making of beef as a sort of side line to dairying on large farms. By substituting a certain number of beef cattle for milch cows a reduction is made in the labor that would be connected with the handling of additional milkers. This practice applies most frequently in districts where the Ayrshire predominates, for of all the dairy breeds the Scotch bossie most closely resembles the beef breeds in conformation and in tendency to put on flesh. At best, however, such an arrangement can be only a makeshift and the results unstable.

The average farmer engaging in the business finds it more profitable to confine his operations to feeding good grades of the beef breeds. By retaining the most desirable heifers for breeding purposes he has no difficulty in maintaining the supply and quality of his stock. This includes the ability of the cows as milk producers in order that the calves destined for baby beef may receive a good start.

There are a few belonging to the third class, who secure their feeders by crossing Short-Horn cows with Aberdeen-Angus bulls. The calf resulting from this mating generally possesses the maximum of good qualities and the minimum of defects, of sire and dam. They are uniform in color, being either a black or "blue gray," and polled. In conformation they are thick fleshed, blocky, low-set, short of face and broad of muzzle. Usually they are superior to their sire in spring of rib and in uniformity of width from the hooks to the pinbones, and surpass their dams in breadth, compactness, fleshing of the shoulder and in smoothness throughout. These important factors have made baby beeves of this class very popular with buyers.

Various methods of feeding are followed. The usual custom is to turn the cows with nurse cows. Here is where the milking type of Short-Horn with a capacity of 6000 or 7000 pounds of 4 per cent. milk a year is an important factor in forcing a profit from baby beef production. For the first four or five months of her lactation period such a cow will nurse two calves. During the first month the youngsters are allowed the milk three times a day, after which two feedings are considered sufficient. Later on in the cow's lactation period when her milk flow has decreased considerably, only young calves are turned with her, and the older ones are transferred to those that have newly freshened, thus providing the larger calves with a more liberal supply.

In dairy sections where it is desired to patronize a creamery, very good calves can be raised from using the skimmed milk, and as this is highly nitrogenous it is necessary to add some concentrate such as ground flax seed to replace the fat removed by the separator. For a calf that has been gradually weaned from whole milk, 10 to 12 pounds per day is sufficient and the maximum amount, at any age, should not be over 20 pounds. As a preventive for indigestion a small quantity of lime water is frequently added; or, in case the trouble does appear, castor oil proves to be an effective remedy.



Epistor 201189

Grand Champion Aberdeen Angus Bull at 1916 International

There is some difference of opinion among feeders as to the most satisfactory meal ration. Practically all the various home-grown grains and commercial feedstuffs have their advocates. All, however, favor oats and peas. The latter, though, have been so scarce in recent years and consequently so high in price, as to make their use almost prohibitive. Low grade flour and shorts have been used in some quarters, but in a limited way. Oil cake has proved to be one of the most popular concentrates for narrowing the ration and thereby adding to its digestibility, as well as for its laxative effect. Any of the reliable molasses meals are also held to be desirable as a means of increasing palatability and in maintaining a healthy digestive system. After all, the bulk of

(Concluded on page 239)

Handling Horses During Harvest

GEORGE H. DACY

Harvest time is always hard on horses because the work is heavy, the hours usually are long, the weather is hot and the grain may be so ripe that the work has to be rushed in order to save the crop. Every harvest sees some horses die in the field under the strain of heavy work and hot days. Other animals get off feed or are temporarily overcome by the heat. That is why it pays to exercise all precautions to keep your horses in fit condition and to use every aid which will lessen the work when the grain crops are cut.

Where plenty of horsepower is available it is practical to shift the horses about at mid-day, substituting a fresh team for the two most spent animals. If four horses handle the binder with some effort it is good management to hitch a five or six-horse team to the implement, as then the pull per horse will be decreased, and the animals will not be so tired at quitting time, while more grain will be cut in the course of a day. Where one man rides a wheel horse and drives the team it is advisable to shift the horses about so that he will ride a fresh horse in the afternoon. This animal has to do double duty, as in addition to carrying the driver he has to pull his share of the load.

Common sense should be exercised in watering and feeding the horses during the harvest season. If possible, the animals should be allowed to drink a little water at frequent intervals during the day, but usually this is impossible under field conditions. The animals should be allowed to cool off before being watered at noon and night and then should be permitted to drink slowly and not gorge themselves with cold water. It is a very bad practice to water horses right after eating, as then all the food is washed out of the stomach before it is properly digested. Horses need a little extra feed where they are performing heavy work. Ten to 12 pounds of grain and 12 to 14 pounds of hay daily for a horse weighing from 1000 to 1100 pounds should be adequate. The common rule is to feed hay *ad libitum* and one pound of grain daily for each hundred pounds of live weight.

The aim should be to keep the horses in healthy condition. If necessary bran should be used in the grain ration on account of its light character and laxative properties, although if the horses are turned out on good grass every night the green feed should keep their bowels open. Oats are better than corn as a hot weather feed for work animals, because this grain is not so heating on account of its lower carbohydrate content. It pays to cut some green stuff, such as grass, cowpeas, soy beans or the like, for the horses to pick over at the noon hour. Also at this time it is practical to remove the animals' harness and rub them off with a handful of grass, hay or straw in case they are very hot.

When the horses come in at night the harness should be removed and each animal sponged off with cool salt water. All this work takes time, but it is valuable insurance in protecting the horses against heat and sickness at a period when every horse on the farm is needed. After the horses have eaten their grain they should be turned out into a good field of grass which has running water in it. This will assure the animals plenty to eat and drink and the opportunity to roll and rest during the hot night so that the following day they will be in good shape for another spell of heavy work.

Anent the Milking Machine

L. W. VEIT.

As I frequently read in The Practical Farmer discussions regarding the practicability of the milking machine on moderate size farms, I think other readers may be interested in my experience.

I had a two-unit mechanical milker installed a little over three years ago. In the last two and a half years of that time I have not missed a single milking with the machine, showing its reliability. I usually milk from 18 to 25 cows, and it takes the wife and me from 40 minutes to one hour to do the milking. Besides this, while the machines are milking I grain the cows. And as soon as we have changed a machine we strip out by hand the little remaining milk, which is a very short job, but I believe a good practice. We also carry the milk to the milk house and cool it in this length of time.

I have seen no bad results from the use of the machine on my cows—on the contrary, I believe we have gotten more milk, and have had less udder trouble than when hand milking. One reason I give for this is that the machine never gets tired, and for that reason is always the same.

Before having the machine we kept a hired man the year around; since installing we have hired only a little by the day, making quite a saving.

I believe the milking machine to be a very good investment for any one having 12 cows or over. In our case we could not possibly get along without it, at almost any price.

Pennsylvania.

A Joint Sheep Sale

COMFORT A. TYLER.

The possible scarcity of food products with the emphasis on meats, is perhaps one of the most potent factors in stimulating the sheep industry. The sheep is a quick growing animal, is cosmopolitan in his habits, can live and thrive almost anywhere on any kind of vegetation that grows, and will produce more profit for the amount invested than any other animal. This has made the production of better sheep imperative. It has been a great stimulus to growth of the pure-bred sheep industry. Many new flocks are forming. Established flocks are increasing their breeding stock; stock men are interested everywhere. In an effort to give all an equal chance to secure some of the best the world has to offer, several of the leading registry associations have joined in an organized effort to distribute in the most economical way the choice offerings of many hundreds of flocks. A joint sheep sale has been arranged at which about 2000 sheep will be sold at public auction on the State Fair Grounds at Columbus, Ohio, on August 7th and 8th, 1917. There will be registered Shropshire, Hampshire, Rambouillet and Lincoln sheep offered, also a limited number of unregistered ewes of high individual merit. A committee was organized to handle this sale, consisting of the secretary and one other member selected by the association, from each of the four associations joining in the effort.

We believe this to be a movement that will fill a long-felt want and it is proposed to make it an annual affair. It is our firm belief that within five years from now practically all of the pure-bred sheep of America will be sold at public auction, and that this is but the entering wedge for much larger fields of usefulness. It is the economical way to sell pure-bred sheep from every standpoint. We believe that next year there will be several sales held in different localities, under the auspices of this non-partisan organization, and both sheep sellers and sheep buyers will very soon look forward to these events as the easy, economical, rational way of bringing sheep sellers and sheep buyers together where they may meet face to face, see the sheep they are buying, and advertising may be brought to an exact science. It is a progressive movement and we want all progressive sheep men or contemplated sheep men to be with us. The world is our sheep fold, the world is our market and we want the world to meet and greet us.

Michigan.

Cost of Milk Production

The rapid increase in the cost of grain, the scarcity of labor, and the present price of milk are causing many dairymen to sell their cows for beef and discontinue the business. The New Jersey Agricultural Experiment Station recently obtained data from 160 herds in Sussex county, representing 3,866 cows, which show that it costs almost 50 per cent. more to produce milk at present than it did in 1914. On the other hand, the price of milk has not increased in the same proportion. Grain has increased in price approximately 80 per cent, labor 50 per cent. and other costs to a lesser degree. The cost of milk per quart in Sussex county at present is approximately 5.53 cents, while for South Jersey this cost is one-fifth to one-third and in some localities one-half greater. This is leading to the disbanding of the dairy industry in the southern part of the state. The reasons for increased cost of milk in South Jersey are a warmer climate, higher-priced land, less good pastures, increased cost of feed, and a smaller production of milk per cow.

Although it costs more than formerly it is still profitable to feed grain to good cows. Results at the experiment station show that even a very liberal feeding of good roughage will support a production of only about 20 pounds with Holsteins. A good, fresh cow will produce more for a short time on such a ration, but very soon will drop to the level of the ration. It is not economy to save 5 pounds of grain a day and thereby lose 10 pounds or more of milk through several months. A pound of grain a day will mean, at the very least, a quart of milk when fed to good cows; so until a pound of grain is worth as much as a quart of milk we cannot consider feeding no grain. It depends on the cow. If her limit is 20 pounds, liberal roughage is sufficient. If she is capable of higher production, the margin between the price of a pound of grain and the value of the extra milk secured is clear profit.

Cotton seed and oil meal are now by far the cheapest sources of protein as well as of energy value. All feeds are rapidly going up in price. It would doubtless be good policy to purchase a supply of the above feeds in view of future possibilities. Home grown alfalfa or clover hay, corn silage and corn and cob meal, with the above purchased concentrates will make the cheapest ration for next winter.

Don't Take a Chance With Sick Hogs

"Don't take a chance with a sick hog. Act quickly. Get a veterinarian or a trained man immediately. Don't wait a single hour when you suspect disease in your herd. Use the telephone or send to town at once. Only prompt action will stop hog cholera losses. Every hog saved will help win the war."

This is the message of tremendous importance the U. S. Department of Agriculture is carrying to farmers. Hog losses in 1916 by disease amounted to 48 hogs out of every thousand for the entire country. At least 90 per cent. of these losses were attributed to hog cholera.

The time for argument about anti-hog-cholera serum is past. Explicit figures are readily available which prove unmistakably that when administered in time by competent persons, hog cholera serum will keep well hogs from taking the disease for a period of three to six weeks. Not argument, but quick action is imperative to get serum and a trained operator to the farm to treat the sick animals. Hogs will be saved and the nation's meat supply increased if immediately upon sign of disease a call is sent to the nearest available expert to diagnose the complaint and administer whatever treatment is necessary.

The Department of Agriculture is urging that all state, county and local live stock interests, including state veterinarians, live stock boards, state college workers, county agents, and local veterinarians, begin immediately to organize anti-hog-cholera preparedness campaigns to reach every farmer in every county. Such organization already exists in many places. Where it does not, there is need of special and immediate action before the hot weather conditions, favorable to hog cholera, come on.

Because a single outbreak of hog cholera on any farm is a matter of moment to the entire community, and because hog cholera infection is rapidly spread in many ways, the Department of Agriculture is urging farmers to employ every possible measure to keep the disease out of their herds. The Department has issued a special hog cholera poster, "Stop Hog Cholera Losses," which gives specific directions for avoiding infection by sanitary and self-quarantine measures; also directions for the isolation and treatment of cholera-infected hogs and directions for disinfection and restocking the hog lot. Farmers' Bulletin 834, soon to be published and distributed free, contains the latest information at the command of the Department of Agriculture concerning hog cholera prevention and the immunization of hogs against the disease.

Suggestions on Care and Feeding of Dairy Cattle

Do not feed the dairy herd as a herd, for cows differ in their food requirements just as human beings do, advise dairymen at Ohio State University. By feeding all cows in the herd alike, some are sure not to get enough for the greatest profit, and others will get more than they can use to advantage.

Cows need much water and should be induced to drink two or three times a day if possible. The average milch cow requires nearly ten gallons of water a day and more than two-thirds of that must come as drink and the balance from water in the feed. Always provide clean fresh water.

Salt should be supplied at the rate of five to seven ounces a week, given as often as twice during the week. Do not use a common salt box in the yard unless all cows are absolutely free from disease.

It pays in dollars and cents to give the cow extra care. The cow that is kept comfortable will give the best returns.

It is always desirable to grind all grains for the dairy cow, because of the large amount of feed that a cow must digest in order to produce well.

There is no advantage in cooking or steaming feeds for dairy cows. Some unpalatable feeds may be consumed in larger quantities if cooked, but cooking does not ordinarily add much to the palatability of grains and may even decrease their digestibility.

Pennsylvania State College Buys Clydesdales

The demand and present high prices for good active draft horses for city as well as farm work cannot fail to indicate, to the casual observer, that this is a good time to breed horses. Realizing these conditions will exist for some time, the Pennsylvania State College School of Agriculture and Experiment Station recently established a Clydesdale breeding stud. Profesor W. H. Tomhave, head of the Animal Husbandry Department, purchased for the College four mature Clydesdale brood mares, two fillies, a stallion colt and a mature stallion. This number was recently increased by the birth of the first pure-bred Clydesdale colt on the farm, Lord Albert the 2nd.

Jersey Cows Sell High

Good prices were obtained for the 110 head of pure-bred Jersey cattle at the annual Memorial Day sale of T. S Cooper & Sons, Linden Grove, Coopersburg, Pa. The highest price paid for a cow was $4000, by Mrs. C. D. Illingsworth, of Philadelphia, for the imported Simone of St. Savior.

White Horse Farms, Paoli, Pa., were the largest buyers, taking 14 of the Jerseys offered at the following prices, $1200, six at $1100 each, $900, $625, and five at $500 each. Among other local buyers, Flatlands Farm at Three Tuns, Pa., bought three animals for $385, $360 and $300 respectively.

At the public auction 88 head were sold for $60,280, and 22 head were sold the same day at private sale for $22,500, making total sales for the day $82,780.

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You can never tell when a horse is going to develop a Curb, Splint, Spavin, Ringbone or lameness. Yet it is bound to happen sooner or later. And you can't afford to keep him in the barn. Keep a bottle of

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1200 registered Shropshire, Hampshire, Rambouillet, Lincoln and Cotswold sheep to be sold

At Public Auction

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under the auspices of the registry associations of the breeds mentioned. Also a few hundred high grade unregistered ewes. This will be a bona fide sale at which every sheep offered will be sold to the highest bidder. The greatest opportunity in years to purchase high class sheep.

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A MILKER THAT MILKS WITHOUT STRIPPING

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$3 Package guaranteed to give satisfaction or money back. $1 Package sufficient for ordinary cases.

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Baby Beef Proposition

(Concluded from page 237)

the evidence given seems to lead one to the conclusion that the essential thing is not what single feed is the best, but how many can be obtained, so as to encourage variety in feeding.

While silage and roots are the only obtainable sources of succulency during the winter months, some experienced feeders claim that they can secure better results during the summer from alfalfa or a mixture of oats and vetches fed green, in the stables, in preference to pasturing or silage. This, of course, means more labor, but many who specialize in this line believe that careful attention to the wants of baby beeves pays well for the extra time and trouble involved.

On the whole, however, farmers are coming to realize the fact that this system of feeding steers has several advantages. Instead of letting the steer loaf around the farm for a period of three years with little or no profit, the feeder is enabled to turn his finished beeves into cash in from twelve to fifteen months and then to repeat the operation before the more mature animals could be marketed. One man tells me that he can make his baby beeves gain from 2½ to 3 pounds a day, while with the mature steers he considered himself fortunate to get a daily increase of from 1 to 1½ pounds.

The fact that the cows do not require to be milked is of importance in connection with the existing scarcity of labor. They also dispose of the farm roughage. There is also an opportunity to economize in pasture as well as in stable room. Moreover, the finished baby beef does not have to seek a satisfactory market. He is just what the butcher wants, because his carcass affords the minimum of waste. The farmer who dislikes the idea of quittting the business because he cannot secure the right type of feeders is finding in this handy light-weight a solution for his difficulties.

News from the Breed Associations

HORSES.

The Percheron Society of America now has a membership considerably over 8000. Illinois leads the list with 1714 members, followed by Iowa with 1245. Pennsylvania is credited with 216 members, whereas New York has only 108. Virginia claims 79 members, Maryland 23, West Virginia 19, New Jersey 7 and Delaware 4.

CATTLE.

A review of the work at The American Guernsey Cattle Club office for the fiscal year ending April 30th is of much interest and encouragement. There is no better index of the advancement of the Guernsey.

The bulls admitted to the Herd Register now number 43,625, and the cows 72,614, a total of 116,239. There was a gain of 47 per cent. in the number of bulls registered this year over those entered last year, and a gain of 37 per cent. in the number of cows registered.

The transfers show an increase of 37 per cent. Twenty-eight bulls and 777 cows, a total of 805 head of Guernseys, have been imported during the year. From Guernsey 24 bulls and 551 cows; from England 3 bulls and 177 cows, and from Alderney 1 bull and 47 cows. The active list of members at the present time numbers 591. The financial statement shows that the receipts for the year have been $106,882.84, which with the balance from last year makes a total of $113,373.72. Expenditures for the year amounted to $106,138.06, leaving a balance of $7,235.66.

In the Advanced Register division 300 breeders located in 27 states are now testing 1390 cows. This is an increase of 30 breeders and 217 cows during the year. The wisdom of the club in establishing their Advanced Register upon the year's test basis is demonstrated by the prices obtained at public sales for cattle with Advanced Register records back of them.

SWINE.

The American Mule Foot Hog Record Association is raising a fund of $1000 for extra premiums at the National Swine Show in Omaha, Neb., to be held next October. This will obtain recognition and a classification for this new breed at a National Show for the first time. Many of the members in the Middle West will exhibit herds. The American Association is now six years old and has 150 members, besides hundreds of breeders who record their stock with it. The founder of the breed was John H. Dunlap, Williamsport, Ohio, in the sense that he first pushed its advertising in the United States. The fourth volume of the American herd book is on the press now.

SHEEP.

The Continental Dorset Club this year will offer premiums at the following state fairs: Ohio, Indiana, Illinois, Michigan, New York, New Jersey, Kentucky, Vermont and Oklahoma, also the International Live Stock Exposition, Chicago, of which this Association is a member. The Club Record, Vol. 16, which contains 1478 registrations and 1478 transfers will soon be ready for distribution.

Glen Alex Queen DeKol 275362

She is the first Holstein 40-lb. daughter of a 40-lb. cow and recently, while less than three years old, produced 42.36 lbs. of butter from 608.8 lbs. of milk in seven days

MORE CREAM LESS LABOR

Through Using a

NEW DE LAVAL CREAM SEPARATOR

PATRIOTIC DUTY as well as dollars-and-cents self-interest now demands of every cow owner the saving of every ounce of cream and butter-fat.

Likewise the saving of time that is possible through a cream separator of ample capacity, that is easily turned and always in order.

There was never a summer in the history of the country when both these considerations were of as great importance to the nation as well as to the individual producer of cream and butter.

Under present circumstances, a modern De Laval Cream Separator will save its cost every few weeks. Every cow owner owes it to himself and his fellow countrymen to effect this saving.

This is true whether you have no separator or have an inferior or half-worn-out machine, even if it be an old De Laval model.

It is important to remember, too, that if you cannot pay cash for a new De Laval machine, you can buy one on such liberal terms that it will actually pay for itself while you are using it.

Every New De Laval is equipped with a Bell Speed-Indicator

Why not see the nearest De Laval agent at once? If you do not know him, write to the nearest office for new catalog or any desired information.

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ROSS ENSILAGE CUTTER and SILO FILLER

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ASK AT ONCE ABOUT MY BEAUTIFUL REGISTERED 8 months JERSEY BULL to be sold at a bargain. W. F. McSparran Furnise, Pa.

High Grade HOLSTEIN CALVES Either sex, beautifully marked, $15 each. Ship anywhere. F. H. Wood, Cortland, N. Y.

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BERKSHIRES

The boar Majestic Mammoth 229500, weight 407 lbs. at 7 months, was bred and developed by us. If you want the big kind write to—

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"HAMPSHIRES" Grow very large, as much as 1000 lbs. Weanling pigs ready. Also Guernsey Bulls ½ full, 6 mos. old. Free circular.

Locust Lawn Farm Bird-in-Hand, Pa. Box P. Lancaster Co.

Here Is One of the Ponies,

with Buggy and Harness, that I give away. Wouldn't you like to own an outfit like this? Couldn't you have a lot of fun driving around the country? If you want a Pony for your very own, the first thing to do is to send me your name.

5 More Pony Outfits

to be *Given* to Boys and Girls

This is the best chance you ever had to get a real live playful Shetland Pony without paying any money for it.

I am called the Pony King of America, because I have given away so many Shetland Ponies to Boys and Girls—more than any other man in the United States.

450 Ponies Given To Boys and Girls I have given away 450 Ponies to 450 Boys and Girls—scattered from Massachusetts to California and from Minnesota to Texas.

Now I am going to give away Five More Ponies—beautiful, silky-haired Shetland Ponies—five of the finest Shetland Ponies I could find. I picked them out myself.

Of course, I am going to ask you to do a little something for me, if you want one of these Ponies I am giving away; but it is something that is not hard for a child to do. 450 other children, of all ages, have done it and received a Pony, without paying any money.

I Pay All Expenses I pay all shipping expenses, right to your own town, not only on the Pony, but also on the Buggy, Harness, Saddle, and Bridle that I send with him. No matter where you live, or if you are a small child, you can do this for me just as well as any other child, and get one of these Ponies.

Parents! **Remember, we make it easy for your child to get a pony.** We use them to advertise our big magazine for farm folks—The Farmer's Wife.

The banker in your town will tell you that The Webb Publishing Co. which owns The Farmer's Wife is one of the largest farm paper publishers in America and that it can well afford to give these ponies to boys and girls who help advertise it. I am employed by this company to give ponies to children as prizes.

Just Think Children how wonderful it will be to own one of these beautiful little pets. When you want a ride to town or go after the cows or run an errand for father or mother, just throw on the saddle and bridle, jump on and go scampering down the road. When you want to take your friends for a ride, hitch the Pony to the beautiful little buggy we send you.

There is nothing that will give a child as much pleasure, or that will develop kindness, appreciation and self-reliance in a child so much as to own a Shetland Pony. They are such wonderful playmates—gentle, well-mannered, lovable and quick to learn. The first Shetland Ponies, you know, came from the Shetland Islands, north of Scotland, where they have been pets of the inhabitants for hundreds of years. They are natural-born pets.

Pony Pictures Sent Free I want to send a **colored Pony Picture Circular free** to every Boy and Girl that sends in his or her name. It gives the names and shows the pictures of these five ponies with children riding them out on the farm where they live. It shows one of the ponies hitched to the beautiful Buggy I am going to give away, with six children taking a ride. It shows a picture of The Pony King out on the Pony Farm, talking to 15 children who live near the farm and who come over to ride the Ponies. It also tells all about the five beautiful Shetland Ponies I am now going to give away and how to win one. Every boy and girl should get this Pony Picture Circular. I will send it free to every child who sends me his or her name.

Children Be sure to take this opportunity to get a Pony. Don't wait. Write your name and address in the coupon below, cut it out and send it to me. I will then send you the Colored Pony Picture Circular free and you will learn how to get one of the Real Live Ponies I am going to give away soon. You have just the same chance as any other child and it doesn't cost you a cent. Get your pencil and write your name in the coupon and mail it to me.

Jump in the Saddle and Away You Go

When you are not out riding in the little buggy you can throw the saddle on your pony's back and go out for a ride. Think of the fun you could have, cantering to town or over to a neighbor's house when all the big horses are busy at work.

Write Your Name Here

and Send This Coupon to Me

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Please send me the **Free Pony Pictures** and enter my name in your **Pony Club** so I will learn how to get one of the ponies you are giving away.

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The Practical Farmer

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Live Stock and Soil Fertility

By W. H. TOMHAVE

LIVE stock and soil fertility are two phases of agriculture that are inseparable. They are so closely allied that they must go hand in hand, as one is largely dependent upon the other. It is essential that the fertility of the soil be maintained on a high plane in order to produce the crops that are necessary to feed live stock grown upon the average farm. There is a Flemish proverb which reads: "No grass no cattle, no cattle no manure, no manure no grass." It seems to me that a great deal might be learned from this proverb, and that its teachings are not practiced in this country as much as they should be.

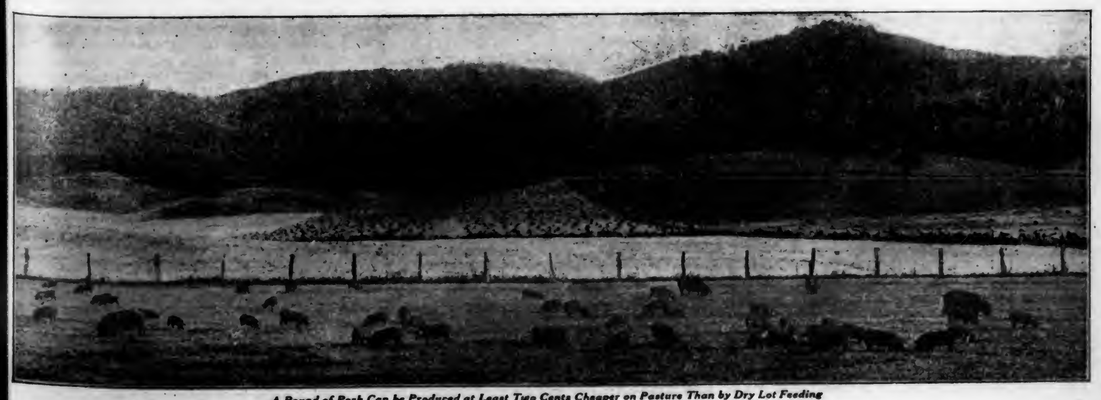
It is practically impossible to maintain a permanent system of agriculture without the use of live stock. This fact has often been demonstrated in various parts of this country and in Europe. As an illustration of this condition I might cite Lancaster county, Pennsylvania, as well as certain sections of Ohio, Iowa and Wisconsin. The agriculture of Lancaster county, Pennsylvania, is nearly as old as that of any section in the East, and yet the fertility of the soil in that county is better today than it was several generations ago. This is due to the fact that they have followed a system of farming which demanded live stock. The cropping system followed was such as to demand the growing of hay crops, in addition to corn, some small grains and tobacco. The tobacco fields required a large amount of manure which was secured by feeding practically all the crops grown upon the farm. The result of this practice is that after nearly 200 years of tilling the soil the land is in a high state of fertility.

This might raise the question of whether there is not room for more live stock in the East. I believe this question is emphatically answered by a report in the year book of the Department of Agriculture for 1914, which gives the following data concerning the number of animals per farm in the states of West Virginia and Pennsylvania, and has as a comparison of these two states that of the state of Iowa.

	West Va.	Penna.	Iowa
Value crops per farm	$410	$760	$1450
Number of farms	96,685	219,295	217,004
Size of farms (acres)	113	84.8	156
Return per acre crops	$3.63	$9.00	$9.30
Horses	2	3	7.4
Milch cows	2.4	5	6.1
Other cattle	3.4	3	12.3
Sheep	8.2	3	6
Swine	3.9	5.4	40.2
Value live stock per acre	$2.89	$7.71	$3.65

Good Draft Horses are in Demand this Year and There are Few Farms which Cannot Raise Them Profitably

From these figures it will be noted that the returns per acre of the crops produced are high in the states where the greater amount of live stock is kept. It will also be noted that the value of live stock per acre of farm land is greater in Iowa than either Pennsylvania or West Virginia. This may, however, in part be accounted for by the fact that there are fewer acres of tillable land in the farms of West Virginia and Pennsylvania than there are in Iowa. From the farming practice in many sections we find that the fertility of the soil becomes exhausted after continuous cropping. In other words, the plant food is taken from the soil and it becomes impoverished unless something is supplied by the use of commercial fertilizers, but when such is the case it becomes an expensive operation and usually requires a cash outlay. For this reason it is not the method of keeping up the fertility of the soil that should be recommended. The average farmer objects to paying out this money, and in addition usually supplies the minimum of the required fertilizer rather than the maximum. When the fertility can be secured from the supply of barnyard manure that is produced in feeding cattle or live stock of any kind, it is applied more liberally and if properly handled is a cheaper means of keeping up the fertility of the soil. The commercial fertilizer also does not supply the humus and the organic matter which is supplied when manure is applied. This seems essential, because when the supply of organic matter decreases the physical condition of the soil becomes poorer and the crops produced are not in keeping with those produced upon the land that has had an application of barnyard manure. The amount of fertility removed from the ground in grain and roughage is a very important item. This will range in value from $5 to $10 worth of soil fertility for every ton of grain and roughage sold. This is approximately the same amount that is removed with every ton of live stock or live stock product sold from the farm. There is a marked difference, however, in the value of these two products. A ton of live stock is valued from $125 to $300 per ton, which will make the loss of soil fertility from 3 to 6 per cent. of the total value sold. While on the other hand a ton of grain or hay under normal conditions is valued at from $15 to $40 per ton; it means that from 25 to 50 per cent. of the fertility value of this crop is lost to the farm when sold. Much of this



A Pound of Pork Can be Produced at Least Two Cents Cheaper on Pasture Than by Dry Lot Feeding

might be retained if these crops were fed upon the farm and the finished product sold in the form of live stock or live stock products.

Considerable experimental work along this line has been conducted at a number of the experiment stations in order to determine the value of manure in crop production. In most cases the results show the value of manure and live stock in production and the total profits that may be derived. In a series of tests conducted at the Ohio Experiment Station covering 18 years comparing the returns from land on which 8 tons of manure reinforced with acid phosphate was applied once in a rotation of three years, there was a very marked difference in the amount of crops produced upon the land that was manured and that which was not manured. On the treated field it was found that an average of 67 bushels of corn, 27 bushels of wheat and 2½ tons of hay were produced, while on land receiving no treatment only 36 bushels of corn, 11 2-3 bushels of wheat, and 2740 pounds of hay were produced. Thus it will be seen that in practically every instance the crops produced on well fertilized land was much greater than those produced on the untreated land.

Under normal conditions each 1000 pounds live weight of dairy cows kept on the farm for a year ought to produce twelve and seven-tenths tons of manure. Estimating the nitrogen in this at 15 cents per pound, phosphoric acid at 3 cents a pound and the potash at 5 cents per pound (all of which are low compared to the present price of commercial fertilizers) we find that this should be valued at $28.07. Thus for a dairy of ten cows each weighing 1000 pounds, the manure produced in a year would be valued at nearly three hundred dollars. In the same way the manure from 1000 pounds live weight of horses in a year amounts to seven tons and has a value of $19.88; from steers seven and one-half tons worth $21.75; from sheep five and one-half tons worth $32.06, and from swine seven and three-tenths tons valued at $25.48.

From these figures it will be noted that if all of the manure is saved, the fertility of the soil can be materially increased by the keeping of live stock. It is furthermore a fact that a great deal of the feeding value of the feeds supplied is recovered in the form of plant food, while the animal has made use of it for building its body tissue.

It is true that there is considerable loss in one form or another of the fertilizer constituents of barnyard manure. This should be taken into consideration in calculating the approximate amount of plant food that can be derived from manure produced.

A combination of live stock and general farming is important from the point of view of management. It means that the returns may be derived from different sources than from an annual income once or twice a year. As a rule, the income on live stock farms is spread all through the entire year. This is quite essential, as such income is desirable to take care of current expenses. The keeping of live stock on the farm also has a tendency to distribute the farm labor throughout the year, making it possible to secure more desirable labor than is possible during the summer months when crops are produced.

It requires no more labor to till the land that is rich in fertility than is required to till the land that is poor and non-productive. Any increase in yield that can be obtained will be secured from the use of the fertility applied rather than from devoting more time to the cultivation of the land. The amount of labor and overhead charges to produce and take off a crop of grain is approximately the same when a small or a heavy yield is secured. There are a few minor expenses such as handling of the product, binding twine and other items that are slightly increased when a large yield is secured.

The combination of live stock and grain has a tendency to induce crop rotation, as the supplying of feed for live stock requires a variety of crops. It furthermore provides a market for crops that are grown in the rotation which would otherwise not be grown, or would be sold from the farm and if continued for a series of years would greatly reduce the fertility of the soil. It also means that many crops that cannot be readily marketed can be sold indirectly when fed to live stock. The keeping of live stock also is an important factor in combatting weeds that are so universally found on most farms. Many of them can be destroyed by feeding them to live stock instead of permitting them to seed upon the land.

Some reasons for advocating more and bettter live stock are: (1) The keeping of live stock is almost universally accepted as being the safest and surest means of maintaining soil fertility. (2) It is seldom that there is an overproduction of live stock and live stock products. (3) The soils of a number of the Eastern States are peculiarly adapted to the growing of grass and forage crops. (4) There is an immense area of rough, stony and hilly land in those sections which is not suitable to other types of agriculture. (5) In the numerous sections remote from markets or railroads the stock may be driven to market on hoof at long intervals during the year. Such a plan would eliminate the expense and hardship of weekly marketing or the hauling of bulky products long distances to market.

Thinning Fruit

NEXT to spraying, possibly the greatest lesson which Western practices have taught the Eastern horticulturist is, properly thinning the fruit on the tree and the influence which it has on the resulting crop. It was only a few years ago that any grower who would go into an orchard and deliberately pull or cut from the trees a large number of what appeared to be promising fruit, would have his sanity doubted. In fact, even yet in the minds of some of the peach growers this is considered the wrong thing to do, as they still believe in the biggest peach crop possible. It has been shown, however, by careful experiment, and market returns have proved it time and time again, that it is not always the biggest crop which pays the best, but that the highest quality crop is the one which brings the greatest return for the effort expended.

For Converting Roughage into Human Food No Animal Excells a Good Dairy Cow

The time to thin, both apples and peaches, is after the "June drop." Rules for doing the work are hard to establish, because different varieties, soils and seasons demand different treatment and it is largely a question for the individual grower to solve. The greatest trouble met with, however, is the fault of not thinning close enough. It has been well said that one grower can go into his neighbor's orchard and successfully thin the fruit, whereas, if he attempts to do his own, the tendency is always to leave on the trees specimens which should be taken off. For this reason a great many growers have found it satisfactory to hire boys from 14 to 16 years of age to do this work, as they appear to have no conscience regarding it, and if they are told to take off half the crop, half of it will come off, no mattter how small the resulting crop may look.

For thinning apples a pair of grape shears, which have long handles and short blades, will be found very satisfactory. On the other hand, peaches are best thinned by using the hand only, taking the fruit between the first finger and the thumb, twisting it and pulling toward the outer end of the branch. If the fruit is pulled toward the middle an ugly tear is apt to be made in the bark and this small injury multiplied many times over will drain considerably on the vitality of the tree. In doing the thinning all defective fruit should be taken off first and then those which are growing too close for their best development and for the good of the tree.

What exhausts the tree is not the production of fruit, but the production of seeds. Therefore, the drain on the viatlity of a tree would be a great deal less if it ripens only one hundred fruits rather than two hundred which maybe will occupy the same space in a measure at harvest time. Proper thinning, therefore, has had a marked influence in making the orchard bear regularly rather than having an off year and a fruit year, as is often the case. Lessening the drain on a tree in carrying its present load naturally gives it a little surplus energy to set fruit buds for the following year.

The fruit raising states are rapidly establishing fruit grading laws and nothing will help the grower in meeting these new conditions as much as properly thinning the fruit on the tree. If all this work of grading has to be taken care of at the time of picking and marketing, which is always one of the busiest seasons of the year, it costs a great deal more and the results are not nearly so satisfactory as where a large part of this work is taken care of during the growing season.

It is common knowledge that the largest and best specimens always command the highest prices, so that the commercial growers have long ago given up the idea of seeing how large a quantity they could raise at the expense of quality.

By properly pruning, a tree can be trained to carry a large weight of fruit without breaking the branches, but careful thinning along with it will still help matters so that very few limbs will be broken. If a tree has been injured for any reason there is a tendency for it to bear a heavy amount of fruit the following year. As it is a great deal more important to save the life of a tree rather than have a lot of undeveloped fruit, severe thinning in a case of this kind will have good effect. A tree which is overbearing also does not make a good growth, but if proper thinning is done it allows a tree to increase its vigor and provide for future crops.

There is no fixed rule as to the proper distance to which apples should be thinned. In the case of young, vigorous trees they can sometimes be left as close as two inches and the results will be just as good as on larger and older trees where the fruit has been thinned to six inches. In the case of peaches, as a general rule they should not be left closer than four to six inches. Aside from the variety and age of a tree the season also has something to do with thinning. During a wet season a tree will be able to mature a great deal more fruit than it will during a dry one when the fruits will remain small, because they do not have sufficient moisture to develop them.

The cost of thinning an acre or a tree depends on so many circumstances that it is hard to give an exact figure. Not only the age of the tree must be considered, but the variety, method of pruning adopted, density of the foliage, method employed for thinning and other factors must be reckoned with. By a survey, however, made in 1914 by the Department of Agriculture, in 87 orchards in the Wenatchee Valley, Washington, it was found that the average time per acre required for this work was 53½ hours and the cost was figured at that time as being $13.32.

This year when reports indicate a good crop of apples and peaches, when labor is scarce, containers high-priced and transportation and storage space at a premium, it is a good time to practice judicious thinning. You will have not only the same number of bushels to sell at harvest time, but they will be of higher quality and you will be more sure of a crop the following year. Quality fruit and not quantity is what counts.

T. H. W.

In order to secure bright, clean fruit, free from insect or fungous injuries, it is necessary to spray fall and winter apples in not only April and May, but also later, to protect the fruit from the second brood of codling moth and from sooty blotch, fly speck or other fungous diseases. New Jersey fruit specialists recommend lime-sulphur diluted to 5 quarts of the concentrated mixture to 50 gallons of water.

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.
EDWARD T. WALKER, Managing Editor
THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS
W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE
F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES
J. C. Billingslea, 119-123 W. Madison St., Chicago.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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JULY 1, 1917

Lose with Liquor or Win Without?

IF we are really in this war to win, one of the greatest allies we could have would be prohibition, at least for the duration of the war. Food, efficiency and health are three big reasons for prohibition as a war measure. Economists tell us that last year 7,000,000,000 pounds of foodstuffs were consumed in the manufacture of malt and distilled liquors. What is the object of us putting forth extra effort to produce plenty this year if some are permitted to starve in order that others may be made drunk. In fact, the brewers, in their year book, proudly boast that it requires the toil of 75,000 farmers for six months to produce enough to supply their wants. With a large part of the world looking toward us to provide their food, shall we fail them merely so those who can afford it may have their customary drink?

The great railroads and industrial establishments have long ago learned what effect drink has on the efficiency of their help. European nations in the early part of the war experienced the difficulties of properly supporting armies in the field when industries at home were crippled, while labor enjoyed what they considered their inherent rights. They saw the wisdom and are now reaping the benefits of drastic wartime measures regarding drink.

As to the effect of alcohol on the health of a nation we need only look to our insurance companies. They have long since figured out that 180 men among moderate drinkers die for every 100 that die among abstainers. The American Medical Association at its recent national convention in New York adopted resolutions declaring that alcohol is neither a food nor a stimulant. What we need to win is strong, physically fit and efficient men, not only at the front, but all the way back, because we must fight as a nation, not as an army.

Settle Your Fertilizer Problem Now

IT is none too early to think about your fall supply of fertilizers Possibly you experienced freight difficulties this spring, and if so, it can only be said conditions are worse now. One good feature, however, is the fact that fertilizer is classed as preferred freight, and if the dealers know what your wants will be they can order from factories for early shipment.

In order to overcome as much as possible the car shortage, the railroads have opened an educational campaign to have cars loaded to their full capacity wherever possible. Many trade units have grown up on the basis of a minimum carload, fertilizers among them, and it is hoped to increase the number of cars by making one do the work of two. This will not be possible unless the movement has the support of the man who orders the goods. We must realize that hundreds of thousands of tons of war material will soon be taxing the capacity of the railroads, and if we want fertilizers we must do our share in giving an early order for all that we need.

We are told that Germany is having serious difficulties with her crops on account of a lack of phosphoric acid. In spite of her vast potash and nitrogen supplies her harvests are slim. This country is fortunate in having possibly unlimited supplies of rock phosphate for use in the manufacture of fertilizers, and new sources of potash and nitrogen are rapidly being developed. It is a high price to pay, but probably in the end this war will be good for American agriculture if it causes our friends the manufacturers to find home sources of supply and teaches us to take better care of the manures produced on the farm.

Fight or Reap?

A FEW days ago in Washington representatives of the organized farmers in America prepared and sent to President Wilson a request to exempt from conscription skilled farm labor. They call to the President's attention the present lack of farm laborers and the plight which Great Britain brought upon herself in the early days of the war by taking too many men from the farms. They realize that the war may last several years and make it necessary to take farmer boys for army service, but in the first call for one million men want those engaged in agriculture to continue with their work. The Farmers' National Congress, National Dairy Union, National Grange, National Union American Society of Equity, National Council of Farmers' Co-operative Associations, Pennsylvania Rural Progress Association, National Agricultural Organization Society and Rural Credit League of America were all represented at this meeting.

History proves that farmers have never been slackers when duty calls and present day events show that many unable to restrain their patriotism are offering their life for the cause. It is time to ask the question, however, where the individual can do the greatest good for the world at large and hasty action should not be taken. Since food must be produced before it can be used to support an army or the people behind it, a hoe stands equal to a musket, a tractor to a machine gun and a full granary should warrant recognition as a patriotic achievement.

If We Don't Can We Can't

THIS is the title which one of the Philadelphia daily newspapers recently gave to a two-column editorial addressed primarily to consumers. It endeavored to vividly bring home to them that without food conservation this year we cannot win the war. It is not necessary merely that we have plenty this summer and fall, due to the general production of garden crops, but that we save some of this surplus for winter use. For our city cousins this will be somewhat of an expensive process this year because glass jars and tin cans are already higher than formerly and predictions are they will still go higher in price. We of the country, however, do not need to trouble about this, as most of us have a good supply on hand. Adopt the slogan, "No empty jars or cans this year," and proceed to fill them from garden, orchard and field.

The Federal Department of Agriculture and nearly all the state agricultural colleges are taking active part this year in the canning problem and have prepared an unusual amount of printed mattter on the subject. There is no excuse for any one not knowing the correct way to can almost anything that grows, when a postal card to Washington, or your state college, will bring the desired information. A word of caution should be sounded, however, to stick to one set of instructions and not attempt to combine several.

Sugar this year is a little higher than usual and possibly some will consider it too high for much preserving. This, however, is a mistaken idea, because we must realize that the average jar of canned fruit contains only 6¾ ounces of added sugar, so that the increase of a few cents in the price of a pound of sugar amounts to only a fraction of that increase for each jar. If the preserves are put up for selling they will command a higher price this year and if they are made only for home consumption the increased cost would have to be paid for something used to take their place, so that in either event the increased cost is only in proportion to the growing expenses which we must expect all along the line. We must realize also that sugar adds more than sweetness. It is one of the greatest energy producing foods we have, and cheaper in the United States than anywhere else in the world. We surely can not afford to do less preserving merely because sugar is high—everything is high this year.

Canned Corn for Cows

WHILE we are talking about canning things for ourselves, why not prepare to can some corn for the stock this winter? It is true the cans needed are rather large, holding from 30 to 300 tons each, but the principle is just the same. To make it keep we have to exclude air, one of the essentials for the growth of the minute organisms which cause things to spoil. Thirty years ago the silo was considered only as an experiment, today it is an essential for successful live stock raising. Nearly one farm out of every three in New York State now has a silo, while taking the United States as a whole there is said to be one for every ten farms.

Arguments in favor of the silo have almost been worn threadbare; you have heard them over and over again. If, however, silos paid when corn was worth fifty cents a bushel, can you afford to get along without one when corn is bringing three to four times that price? Then, too, this year it will be just as much a crime to waste roughage as it will be to waste human food. With good silage and alfalfa or clover hay, you won't have to make many trips to the mill this winter, will have surplus hay to sell and considerable more milk than when you were compelled to feed dry roughage exclusively.

In this connection some figures recently published by the New York State Food Supply Commission are interesting as showing the tendency of New York farmers in handling the corn crop. According to the federal census in 1909 there were 511,339 acres of corn in that state raised for grain against 259,082 acres raised for the silo—almost two to one. In 1916 there were 336,543 acres for grain against 362,413 acres for the silo, giving a substantial lead in favor of the silo. The food supply census recently taken by the school children of New York State gives the amount which is being grown this year as 495,469 acres for grain, against 422,867 for the silo. In spite of the high selling price of corn today and the possibility of it being high this fall, it will be seen that very nearly as much is being grown for the silo as for husking. Surely these figures, representative of a great dairying state, are worthy of careful study.

DON'T you think it would be a nice touch of sentiment and a fit recognition which is due the boys who are "doing their bit," if each Grange, farmers' club or organization of any kind started a roll of honor of its members who have enlisted for this war "to make the world safe for democracy?" From our community several able and promising young fellows have left the plow for various branches of the service. We hope they will all return as heroes, but fear that some will only live in memory to those they left behind. To list them now and hang the roll where all can read it would be a whole lot better than waiting until casualty lists are sent out from Washington and then drape the organization's charter for the one who will not return.

Bulletin Helps for Farmers

Two new Farmers' Bulletins of interest to poultry raisers are No. 801, "Mites and Lice on Poultry," and No. 806, "Standard Varieties of Chickens, the American Class." Both of these are fully illustrated, have 18 and 26 pages respectively and contain a lot of valuable information.

Renewed interest in horses makes Farmers' Bulletin No. 803, "Horse Breeding Suggestions for Farmers," especially acceptable at this time. It has 21 pages, is well illustrated and treats on not only the mare and stallion, but the feed and care of colts.

Exhibitors and fair officials alike will be interested in Farmers' Bulletin No. 822, "Live Stock Classifications at County Fairs." Its purpose is to aid in the standardization of classifications at county fairs and it offers valuable suggestions for all classes of live stock "The Production of Baby Beef," is the subject of Farmers' Bulletin No. 811. It deals with the various phases of this rapidly increasing industry and should be read by all farmers interested in live stock.

Farmers' Bulletin No. 810 is entitled "Equipment for Farm Sheep Raising." It contains 27 pages and is abundantly illustrated, so that the various devices can be made from the drawings by any handy man. The most experienced shepherd can get ideas from it and for the beginner it is invaluable.

Any or all of the six Farmers' Bulletins mentioned above may be had free by writing the Secretary of Agriculture at Washington, D. C., and asking him to send you a copy.

Garden Suggestions for July

W. F. MASSEY

RUTA-BAGA TURNIPS.

The ruta-bagas have of late years become more popular for table use than they formerly were, when people considered them plainly as stock food. But they keep in good condition better than the fall turnips and are being annually more appreciated for the table. They need a longer season of growth than the ordinary purple top white turnips. There is a variety belonging to the ruta-baga class which has almost disappeared from cultivation, but is still offered by some seedsmen. This is the Large White French or Rock Turnip. This is the sweetest of all turnips and is known as the sugar turnip in some places. It is a long white turnip with top and leaves like the ordinary ruta-baga, and is so hardy that I have left it in the ground all winter in North Carolina and it kept sound and firm.

Of the yellow fleshed varieties the Skirving Purple Top is one of the best. Early July is the best time for sowing the ruta-baga varieties. For field and cultivation by horse power run out furrows 2½ feet apart and in these furrows use 500 pounds of a high grade fertilizer. Throw a furrow from each side over this, drag the ridges partly down and drill the seed on the beds. When a stand is secured, thin out to 4 inches in the rows for the Long White French and 5 inches for the Purple Top Yellow.

Some good growers save seed by sowing in seedbed and transplanting to the proper distances. The plants transplant easily, but if the tap root is broken are apt to grow forked. In any method the thinnings can be saved and used for transplanting.

BEETS AND CARROTS.

Early July is a good time to sow seed of carrots and beets for late use. I prefer for this sowing the Half-Long Danvers carrot and Edmands Blood Turnip beet. Bastian's Half-Long Blood beet is also fine for winter. In garden culture the rows can be made 18 to 20 inches apart, and soil that was manured for an early crop is better than applying manure directly to these root crops, as rough, unassimilated manure makes them grow forked and miss-shaped. Good commercial fertilizer will generally give better results than manure. Three inches will be enough thinning for the carrots and 4 inches for the beets. When they crowd at these distances they will be large enough to begin using and can be still further thinned. Late beets and carrots are easily kept in winter. Down here in the southeastern corner of Maryland I let them remain in the ground where they grew, merely throwing furrows with the little garden plow to each side. In colder localities take up the carrots when frost comes in earnest, and dig narrow trenches like those used in some places for storing celery. Pack the carrots upright in the trenches and cover with board and straw. Beets can be kept in same way. I find here that while the frost will take off the tops of the carrots in winter the roots seem to get sweeter for the freezing.

HARVESTING ONIONS.

As the tops turn yellow and fall over pull the onions. Some advise rolling a barrel over the patch to throw down the tops that do not fall naturally. But this is useless, for the thick-necked plants will always be scallions. Let the onions stay in the sun a day or two but do not expose them to rain. Spread them out in the hottest place you have, a hot loft, for instance, and when cured remove them to the coolest and darkest place at your command. I prefer to cure them with the tops left on, as they lie lighter with the dried tops and do not so readily heat and sprout. The tops are removed only when to be sold or used. To keep in winter it is safer to risk some frosting rather than get them too warm. A slight freeze does no special harm, but it is best to keep them in total darkness and just above the freezing point.

BRUSSELS SPROUTS.

I prefer to sow seed of the Brussels sprouts early in July and set them out as soon as large enough. These plants will come into mature heading in November and the little heads are much better after some frost. I have never succeeded here in getting them for use in hot weather. Set in rows 2 feet apart and 18 inches in the rows, feed well and cultivate clean.

LATE CABBAGES.

Set plants in July of the late varieties. The catalogues give long lists of varieties, but I have found that a good strain of the old Late Flat Dutch is as good as any. The Danish Ball Head is excellent where it succeeds. It is said that it will not thrive on a limestone soil. Cabbages need a flat soil and abundant moisture. They are very gross feeders and can use large amounts of rotten manure or fertilizers. The late cabbages are especially infested with the green caterpillars, which riddle the leaves with holes. Spray the plants with 1 pound of lead arsenate in 30 gallons of water. The poison will do no harm as the heads form from the central bud and the poison does not get in to them. In some sections the maggots are a pest. About the best thing is to put tarred paper around each plant as set and inject a little carbon bi-sulphide near each plant.

Sweet Sixteen Strawberries

EGGPLANTS.

The seedsmen can usually supply potted plants, and these can still be set. There is no plant grown in the garden which demands a richer soil and more regular supplies of water. A prolonged drought is destructive to the eggplant. I always grow them in pots and transplant in the whole ball. The plants are grown in a regular potting compost, and after they are out and get off to growing I apply a mixture of bone dust and nitrate of soda around the plants to urge a rapid growth and early fruiting. The Black Beauty is the most popular variety, the earliest and best bearer. The New York Improved makes larger fruits and there is no perceptible difference in quality.

OKRA.

Okra planted now will grow off faster than planted early, for if planted in May it is so slow in getting into growing that it is not very much ahead of seed planted after the soil is permanently warm. The best green pod variety is the Perkins Long Pod. The White Velvet or Creole is liked by some, but I have found the Perkins better and earlier. Thin to 2 feet apart in rows 2 feet apart.

FALL PEAS.

Under favorable weather conditions a good crop of fall peas can be made by sowing the early dwarf varieties the last of July. The Thomas Laxton and Sutton's Excelsior are good. The best plan I have found for these is to plant them in deep furrows, cover lightly and then work the soil to them as they grow until level, thus getting the roots down in the moist soil. They are apt to be attacked by mildew and will need spraying with Bordeaux mixture.

LATE POTATOES.

While in the greater part of our territory earlier planting of the main crop of Irish potatoes is best, in the southern portion early July is usually best. We use different methods with this crop than with the early crop. The important matter now is to conserve the moisture. Hence we plant them deeper than the early crop, cover but few inches till they start to grow and then gradually work the soil to them as they grow until level, and cultivate rapidly, shallow and level, and do not hill up as we do the early potatoes. The idea is to keep a constant dust mulch on the land to prevent evaporation of the soil moisture; hilling will cause rapid drying out.

LATE TOMATOES.

Here I set my second crop of tomatoes about the tenth of June, to come in just as the early varieties are getting inferior. Then another sowing of seed is made the first of June, and the plants are set the first of July. These are intended to come in and just be beginning to ripen when frost arrives. They will then be full of well grown green tomatoes, and these are gathered and wrapped in paper and stored in a cool place to be brought in a few at a time and colored up in the warm kitchen for slicing for the table, and we often have them until January. Then, too, we want all the late tomatoes we can find room for, as we can all we can possibly handle, for we want them in constant supply until tomatoes come again.

SQUASHES.

The early summer squashes begin to fail in July, and to keep up a supply some seed planted early in the month will give good squashes after the early ones have ceased to make new ones and the others are hard.

If some turnips are wanted early in the fall sow some of the Early Milan the last of July. These grow almost as quickly as radishes and are sweet and good, but get pithy sooner than others.

New Jersey farmers receive more annually from their crop of tomatoes than the farmers of any other state. Approximately 30,000 acres of this crop, valued at more than $2,225,000, are grown annually in the state. Maryland surpasses New Jersey in acreage, but not in selling price. New Jersey is exceeded only by Florida in production of eggplants and leads all other states growing peppers.

What will raise bumper crops of winter wheat at least cost?

BERG'S ANIMAL — FOR THE FARM THIS FALL — FOR THE FARM NEXT SPRING

Bone & Meat Fertilizer

Enriches the soil Increases the profits

Ample proportion of Ammonia (4 per cent) produces better root growth; makes available the potash already in your soil. And big content (17 per cent) of Phosphoric Acid in that form which is available when most needed—when the wheat is heading next spring. Ask for booklet "A"

THE BERG COMPANY
Established 1873
Ontario St. near Delaware River
PHILADELPHIA, PA.

DEALERS AND AGENTS *wanted in unoccupied territory. Get our proposition "A"*

An Improved Tire

Can you imagine paying low prices for dependable tires? Tires that you know will not puncture under ordinary conditions and will travel a hard, rough road with your confidence that they will hold up?
OUR Improved DOUBLE TREAD TIRES are guaranteed to perform such duties—and yet they are low in price.
The following are prices of our guaranteed tires:—

Sizes	Price	Sizes	Price
30x3	$6.50	36x4	$11.00
30x3½	7.50	34x4½	12.00
32x3½	8.50	35x4½	12.00
33x4	10.50	36x4½	13.00
34x4	10.50	37x4½	13.50

We will retread your worn tires—no matter what condition, at these prices and guarantee them.

Sizes	Price	Sizes	Price
30x3	$5.50	36x4	$8.50
30x3½	6.00	34x4½	8.50
32x3½	7.00	35x4½	9.00
33x4	8.50	36x4½	9.00
34x4	8.50	37x4½	10.00

Add $1.00 to the above for Non-Skid Tire

R. K. TIRE COMPANY
837 No. Broad St., Philadelphia, Pa.
Send for descriptive circular and price list. Good territory open for agents.

1000 Autos $150 to $600

We specialize in nothing but high-grade used cars; 1917 and 1916 models. If you want an auto, one as good as new and want to pay little; want a dependable car, one that will give satisfaction and service, there is really only one place to get it, and that is from us.

Send for Our Summer Auto Catalog B—It's Free

Full of auto information, prices on every car we have—whether it is a roadster, limousine touring car, truck, or delivery wagon. Best of all, when you buy from us you save at least 25 to 50%. Should you desire terms can be arranged to suit purchasers on any of our cars. Autos from $150 up.

Roman Auto Co.
WORLD'S LARGEST AUTO DEALERS
203 N. Broad St.
Philadelphia, Pa.

FREE

Booklets tell you how to produce larger yields by controlling Aphis, Thrips, and other soft-bodied, sap-sucking, crop-destroying insects on

Melons, Cucumbers, Turnips, Cabbages, Onions

and other vegetables and fruit. Black Leaf 40 is effective. Inexpensive. Used by large growers. Recommended by Agricultural Colleges and Experiment Stations. Write for FREE vegetable booklets.
The Kentucky Tobacco Product Co. Incorporated
Dept. R Louisville, Kentucky

Kills Aphis

Black Leaf 40
40% Nicotine

The Mail Order Farmer

JOHN T. BARTLETT

Personal acquaintance is a big factor in profitable parcel post marketing. The most successful parcel post farmers drum up business during the summer season when well-to-do city people are touring by auto or are spending vacations at farmsteads or lake camps in the country-side. The personal bond which assures steady patronage through the winter can then be established. Fresh farm products have double the attraction for the city consumer when the latter is acquainted with the wholesome surroundings in which they are grown.

In the Lake Sunapee section of New Hampshire lives a young farmer who ships more eggs and dressed poultry by parcel post, size of his plant considered, than any other producer in New England. He prepares for this trade in summer, when hundreds of city people are in cottages along the lake shore. He peddles eggs and dressed poultry along regular routes, and the quality of his stuff is so good that the cottagers, returned to the city, buy of him by mail.

He compiles a mailing list of those summer visitors he knows personally. When, through the winter, he has anything special to offer he mails post card announcements to this list. The prices paid are, by mutual agreement, those published daily of local retail markets by a Boston newspaper.

This man depends on summer vacationists for the bulk of his winter parcel post trade. He has tried newspaper advertising, but has found it much costlier and not nearly so productive of business.

In another resort section of New England, a farm doing a summer boarder business has for a house and parcel post trade maple sugar and syrup, maple candy and boxed holly. This farm injects the personal acquaintance factor into his parcel post trade through advertising in a district directory much consulted by tourists. The advertisement occupies half a page. It states that pure and fresh maple sugar, syrup and candy are for sale at all seasons of the year, also holly during the Christmas period. The prices stated are somewhat above grocery store quotations, but look reasonable—as indeed they are—to city people. The sugar is sold for 25 cents per pound in 2-pound and 5-pound cakes and 5 and 10-pound pails; the syrup in gallon cans at $1.50; the maple drops are priced at 40 cents a box and the maple creams at 40 and 50 cents. Holly is 40 cents. Parcel post charges are extra. This advertisement produces good results. Tourists from as many as fifteen different states sometimes buy maple products in the course of a week. The personal bond is established and a lucrative parcel post trade follows.

A roadside farm market, catering to the auto trade, in summer, and a parcel post trade in winter, are a fine combination, each helping the other. The personal factor is the all-important one here, and those farmers who develop it are building substantial cash businesses.

Farmers getting customers by such methods as the foregoing, and farmers selling produce to city friends, grow the bulk of the agricultural products which Uncle Sam's employee deliver in New England. They find their parcel post trade very profitable. No other method of securing mail order customers is half so prolific of results.

The postal department compiled lists at certain city offices, of farmers having produce for sale, printed large numbers of them and had them distributed by carriers to householders. Providence, Rhode Island, was one such city. The list contained about 250 names of shippers of eggs, poultry, butter, apples, canned fruit, jelly, shell fish and general produce. It covered Rhode Island and neighboring counties in Connecticut and Massachusetts. The postmaster at Providence, Walter A. Kilton, informed the writer that after this list had been out six months his office communicated with every farmer on it. So far as could be ascertained, the list had not resulted in a single parcel post order. Postmaster Kilton attributed the failure of the plan at Providence to the high prices asked by farmers and to the fact that there is considerable house to house selling.

There are possibilities, of course, in newspaper advertising to secure customers, but the average results from such advertising in New England are indicated by the fact that newspaper parcel post advertisements decrease rather than increase. Such advertising, generally speaking, has not been very successful. One reason is that the average farmer expects too much from a limited outlay, and refuses to finance a persistent campaign. Another reason probably is the failure of many advertisers to supply high-grade goods and reliable service.

The very best way to get parcel post customers is also the easiest and the cheapest way. Thanks to autos and good road systems, city people now visit the most remote country sections. They pass the farmer's door; they spend the week-end at his neighbor's and they establish colonies at the old pond. Here the farmer can sell them his produce, and if it is of good quality and the prices are right he can sell it to them later by parcel post. This is not theory. Successful parcel post farmers in New England worked up their trade this way.

New Hampshire.

Early Threshing

The high price of wheat this year should cause the grower to give extra attention to the care of the crop after cutting. Each year there is a great loss of grain due to careless handling. The first step toward its proper care is careful shocking. If the wheat is cut before dead ripe the sheaves may be set up in such a way as to stand a tremendous amount of wind and rain. It is well to set them carefully, as circumstances may be such that threshing or stacking cannot be done immediately.

Whether the grain is threshed from the shock or stack it should be done early. This is to avoid damage by the moth. The moth deposits its eggs upon the heads of wheat in the field, and where the grain is stacked for some time the eggs will hatch and attack the grain. There is no feasible method of treating the grain in the stack, while the threshed grain may be treated with carbon bisulphide, if the bin is tight. There is far less danger from moth if the grain is threshed early.

Whether the farmer shall thresh his wheat from the shock or from the stack depends largely upon the availability and distribution of labor. It costs about as much one way as the other. The chief object should be to avoid losses by weather and from insects. After the grain is in the bin it should be carefully watched to note any increase in temperature. This is an indication that the moth is at work. The grain should be immediately treated with carbon bisulphide, one pint of which is adequate for 250 cubic feet of space. It is well to thoroughly disinfect the bin with this before filling with grain. A. E. G.

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Safety—Saving—Service

WE insure farmers against loss of life, limb, sight or time by accidental means and for loss of time by sickness. *Sound insurance at low net cost.* Old-line, not fraternal or assessment. Easy premium payments. A postal will bring you application blank with full particulars.

Just write stating age nearest birthday and say: "mail official insurance particulars as per advt. in The Practical Farmer."

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Works in any kind of soil. Cuts stalks—doesn't pull like other cutters. Absolutely no danger

Cute Four to Seven Acres a Day

with one man and one horse. Here is what one farmer says: Dalaytown, Pa., Oct. 16, 1916. The Love Mfg. Co., Dear Sirs: I cut hillside that was a little steep. Rough and stony ground made no difference. I can cut three times as much and do it easier than by hand. (Signed) A. L. Williams.

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for big, low cost mileage. They save you 65%. We build splendid double thickness tires by special process, giving you the unusual strength and resistance qualities so essential for heavy work in the country.

Three years ago we introduced DOUBLE TREAD TIRES to the farmer. Square dealing, honest values and prompt delivery have built the largest retreaded tire business in America around our "*Doutre*" trade mark. Compare these prices on tires and tubes. Send for booklet and detailed lists. Agents desired.

Size	Plain	Non-Skid	3 Ply Gray Tubes	Red Tubes
30x3.....	$5.00	$5.80	$1.85	$2.05
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32x3½....	7.00	8.00	2.30	2.55
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Also all sizes up to 36 x 5½. State whether clincher, "O.D." or straight side.

Address Dept. A7
THE DOUBLE TREAD TIRE CO., Inc.
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Placed anywhere, Daisy Fly Killer attracts and kills all flies. Neat, clean, ornamental, convenient, and cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Ask for

Daisy Fly Killer

Sold by dealers, or 5 sent by express, prepaid, $1.00.
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FOXES Wanted 100 young REDS. Will pay $2 each and Express charges.
ROBS BROWN, McFALLS, ALABAMA

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Top of the Hopper on the Pennsylvania Grain Drill is only 43 inches from the ground. This makes it convenient to fill and allows the operator to see the ground in front of the machine.

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Write today for your dealer's name and for free descriptive booklet, "Seeding with the Pennsylvania Drill."

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30x3	$9.40	$2.40	34x4	$20.95	$4.15
30x3½	12.50	2.95	35x5	25.55	6.30
32x3½	14.35	3.10	36x4½	29.35	6.35

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Send for a copy of our *Price Wrecker.* The great money saver on auto supplies of every description.

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Broad & Vine Sts., Philadelphia

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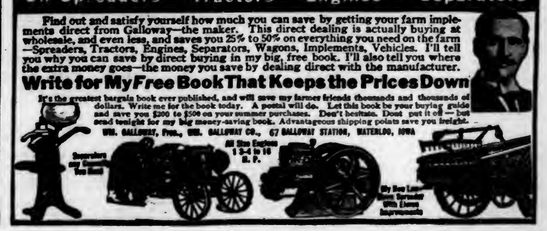

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Separators Any Size You Want

All Size Engines 1 to 20 H. P.

My New Large Steel Portable With Many Improvements

More Poultry Not Alone a Duty —a Necessity

F. V. L. TURNER

Is there a sane farmer who would willingly give up over 8 per cent. of his annual farm income without a protest? I am answering for the whole American farming population when I say, no! And yet 75 per cent. of our farmers annually push aside willingly an extra 8 per cent. that could be had for the thought of it. According to United States surveys, over 8 per cent. of the yearly income from the average farm comes from poultry, the most neglected of all farm profit earners.

Hororable Martin Burrell, Minister of Agriculture, Dominion of Canada, says:

"Raise poultry. There is money in hens. To increase the nation's food supply, this is a patriotic national duty. 10,000,000 more hens are needed to meet the home and overseas demand for eggs. That means 15 more hens on every farm in Canada. Raise two additional broods of chicks, and let the hen help you increase production. Every pound of food produced helps defeat the enemy. Britain makes insistent demand for eggs at high prices. Patriotism and profit both urge you to increase these supplies. Let the hen help you. Interest your boy and girl in poultry keeping."

Because of the meat situation in this country, Government authorities, familiar with the subject, have this to say:

"An army of poultry will help win the war. The nation's meat supply is short. Chickens are the quickest meat crop that can be produced. Chickens require no large cash outlay. We need an increase of 100,000,000 pounds of poultry this year. Will you raise a bigger flock, raise more chickens? It pays, and it is patriotic."

Many farmers will say "It is too late to set eggs to rear chicks." Would these same farmers refuse to replant a crop damaged in its early stages? I am sure we have planted great quantities of spring wheat, more so than formerly, to meet demand occasioned by a short winter crop and increased requirement at home and abroad.

Now, isn't it logical that we raise more chicks, even though the season be advanced, because there is a shortage of meat and because profits are daily mounting skyward on everything eatable? Also, shouldn't we take better care of our flocks that the greatest portion should live to produce more profit? Ill kept, poorly fed hens consume human and animal sustenace without any return to the farmer pouring his good grain into a useless piece of machinery.

Here is a bit of wisdom from Wisconsin, and it applies most forcefully at this point:

"But the big waste in poultry comes through loss after the chickens are hatched. It is a crime against the nation's meat supply to let a chick die after he has eaten some of the farmer's feed, and used up some of his energy. Save your chicks."

Here again we have the example of unnecessary loss; every chick raised will be, in three months, worth at least 75 cents. If the farmer can hold on to these late-hatched chicks he can follow the advice of Harry M. Lamon, Senior Poultry Husbandryman, United States Department of Agriculture, who says of late-hatched birds:

"We stand right here today urging people to do late hatching. Your late-hatched birds lay almost as many eggs in two years as the ones hatched early. Those birds almost catch up with the others in two years. It would be a vital mistake to advocate the marketing of those late-hatched birds."

Further, there are going to be big prices offered for stewing fowl meat next winter; the old hens, two and three years old, that have gone through a molt and are promising spring eggs, will be worth a great deal more than the scrawny, ragged, half molted stuff that goes to market in ordinary times along toward the end of summer and in the fall.

There is still another side to this meat situation; poultry is the quickest means to an end and in the case of farm reared fowl, grain is more profitable fed to poultry at the present price of eggs and chicken meat than if sold to grain dealers. No one denies that there is still a fair profit in poultry, even where all the grain, ground and whole, is purchased.

Two recent rations are those proposed by Professor H. R. Lewis, New Jersey Experiment Station, and Reese V. Hicks, ex-president American Poultry Association. The Lewis ration consists of the following: Wheat bran, 100 lbs.; corn meal, 100 lbs.; ground oats, 100 lbs.; beef scrap, 100 lbs.

Quoting Lewis: "This dry mash can be supplemented by the feeding of cracked corn, morning and night. If oats are available and not prohibitive in price, they may be combined with the corn, two parts of corn to one of oats being used. Enough cracked corn should be fed so that the birds are compelled to eat approximately equal parts of mash and cracked corn. If too much cracked corn is fed, the tendency is for the birds to take on an excessive amount of flesh.

"If the use of wheat bran becomes impossible on account of price and scarcity, the ground oats can be increased slightly in amount and the bran simply left out of the mash. With farm flocks and city flocks, the practice should be to depend quite largely upon refuse from the home table as a very material part of the ration.

"On farms the birds should be allowed to run in the corn fields, orchards and meadows, where they will pick up grubs and insects and secure much of their food requirements from products which would otherwise be unused. On commercial plants the ranges should be continually planted to forage crops in order that a good growth can be secured and a reduction in the feed bills atttained."

Hicks advises the following dry mash: Wheat bran, 60 lbs.; corn meal, 10 lbs.; alfalfa meal, 10 lbs.; beef scrap, 10 lbs.; gluten meal, 10 lbs.

For scratch purposes he recommends: Cracked corn (coarse), 50 lbs.; wheat screenings, 25 lbs.; medium grade oats, 25 lbs.

Hicks says further: "If cracker dust or bakery waste is obtainable, it may be used in place of one-half the bran and cheapen the feed still further. If gluten meal is not obtainable, add one-half more each of beef scrap and alfalfa meal, but the beef scrap will raise the price some. If wheat screenings of fair quality cannot be obtained for under $55 per ton, then double the amount of oats.

"The grain should be fed twice daily, very early in the morning and at about 5 o'clock in the afternoon. The dry mash should be before them all the time, as well as coarse beef scrap. The wet mash should be fed any time from 10 o'clock to noon, depending upon how early in the morning the grain was fed."

July Hints for Poultry Raisers

As the chicks grow they need more room. It does not pay to let them crowd.

Beware of musty, moldy, sour or decayed food. It is sure to cause trouble.

Tough grass is of no value as a green food. Better sow some quick growing crop.

Feed hoppers greatly reduce the work. If they are kept filled, the chicks will never go hungry.

If your chicks are not doing well something is wrong. Look out for lice and for worms in the intestines.

Two-year-old hens had better be sent to the market. They seldom pay for their feed if kept over a third season.

Grit and oyster shell should be included in the ration for both young and old. To neglect this would be poor economy.

Young stock will do better if not compelled to pick their living with the old. There will also be less trouble from lice.

Shade is one of the most important essentials during the hot months. Get the chicks into the orchard and corn field. It is not too late to plant sunflowers.

A growing chick will not thrive on short rations. If the right kind of food is fed, there is little danger of overfeeding, especially if they are given plenty of range.

Supplement the regular feeds with a wet mash—fed crumbly. Feed all the chicks will clean up before going to roost, but none should be left in the trough, for it will sour.

Mark pullets this fall so that you will know just how old your hens are. A leg band on the right leg one year and on the left leg the next will assist in culling the flock. A hog ring may be used.

All these methods have been found successful by the Missouri College of Agriculture, where they are used and recommended by H. L. Kempster.

Cotton Seed Meal for Poultry

Cotton seed meal in rather limited amounts has been fed, since last November, with excellent results, to a pen of 30 pullets on the experiment farm of the U. S. Department of Agriculture. These pullets averaged 52.3 eggs each in 20 weeks, from November 1st to March 20th, which is practically equal to the best egg yield received this year from any of the other experimental rations. No bad effects have been noted from this feed, either in the eggs or in the condition of the fowls, and the hens eat it freely. The ration is as follows:

Scratch Mixture.—1 pound cracked corn, 1 pound wheat, 1 pound oats.

Dry Mash.—2 pounds cotton seed meal, 2 pounds beef scrap, 4 pounds bran, 5 pounds middlings, 9 pounds corn meal.

The scratch mixture is fed sparingly, so that the hens eat about equal parts of it and the dry mash.

A large per cent. of cotton seed meal in a dry mash without any beef scrap has not given satisfactory results. Pullets fed a ration with 33 per cent. cotton seed meal averaged only 33.2 eggs apiece in one year. A considerable per cent. of these eggs had discolored yolks, with green or brownish green spots, making them unfit for market. The hens did not like this mash and had to be forced to eat it by feeding a very limited amount of scratch grains.

These results appear to indicate that cotton seed meal can be fed at the rate of about 10 per cent. of the mash, or 5 per cent of the total ration, with an equal per cent. of beef scrap with excellent results. In sections where cotton seed meal is produced, half of the beef scrap in the mash apparently can be replaced by cotton seed meal with excellent results.

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AN IDEAL FARMER'S COUNTY
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NEW JERSEY is well known for its profitable farming, and beyond question, there are fewer acres of naturally poor land in proportion to the whole number of acres in Cape May, than in any other county in the State.
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If you are interested in farming that pays, and desire full information, write to
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Champions United States Buttercup eggs won all First, Second, Special Ribbons, even Sweepstakes, recent Purdue University Egg Show, competing against all White Egg breeds. Buttercups are "Egg Bonds." Investigate. American Buttercup Club, Ulster, Pa.

QUALITY CHICKS Rocks and Reds, 14c. Anconas and Black Leghorns 12c. White Leghorns 11c. Satisfaction guaranteed. Circular. Delivery each week. E. B. Hummer & Co., R.D.B., Frenchtown, N. J.

CHICKS 15c, 13c per 100. $120 per 1000. Silver and White Wyandottes, S. C. Reds and Rouen and Runner duckling, 22c each, $20 per 100. ALDHAM POULTRY FARM R. 35 Phoenixville, Pa.

75,000 Chicks for June, July and Aug. delivery at rock bottom prices. S. C. White, Brown & Buff Leghorns, B. P. Rocks, Wyan., Red Minorcas, etc., sale catalog free. KEYSTONE HATCHERY, Dept. 80, RICHFIELD, PA.

CHICKS at the lowest possible prices. S. C. White and Brown Leghorns, Barred P. Rocks and broiler chicks. Safe arrival guaranteed. Booklet free. CYCLONE HATCHERY, Box A, RICHFIELD, PA.

EGGS, $1, $1.00; $6, $5.00. Thoroughbred Rocks, Wyandottes, Reds, Hamburgs, Leghorns, 19 varieties. Also Brahmas, Orpingtons, Houdans, Campines. 30th year. Catalogue. S. K. MOHR, COOPERSBURG, PA.

Choice S. C. Red—Barron Leghorn—Cockerels—Pullets. Shipped anywhere on approval. Write. JUSTA POULTRY FARM, SOUTHAMPTON, N.Y.

Day Old Chicks for sale. 10 Varieties. Strong, healthy hatched. Circular free. Old Honesty Hatchery, Dept. F, New Washington, O.

90 Varieties. Poultry, pigeons, dogs, ferrets, guinea pigs, hares etc., folder free. Colored descriptive 68-page book—10c. Bergey's Pet Farm, Telford, Pa.

Preparing for Alfalfa

OUR EXPERIENCE POOL

We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1223, JULY 15.—What plan have you found best for filling the silo? Do you have your own outfit, co-operate with neighbors or hire a traveling one? How many men do you use and how do you place them? Tell us any good ideas you have found in doing this work.

TOPIC No. 1224, AUG. 1.—What farm equipment do you use for preparing the ground and planting wheat? Do you disk ground before plowing? How deep do you plow and do you roll after planting? Tell us some things which will increase next year's crop other than better seed and fertilizers.

TOPIC No. 1225, AUG. 15.—Which have you found the best way to get a field in grass, sowing it alone or with winter grain? What kind of seed do you use, how much per acre, when and how do you sow it? When and how do you fertilize your hay crop?

E. C. T., West Chester, Pa.—One of our greatest pleasures on the farm this year will be harvesting the alfalfa. We know that it is practically equal in feeding value to wheat bran and know the dealers are asking $42 a ton for bran, so we do not mind all the effort we spent in getting a stand of alfalfa. Inoculation, lime and drainage we consider essential for success. We have never tried the commercial cultures, as we used soil from an old alfalfa field. We applied 500 pounds to the acre and were careful to harrow it as soon as applied, and do the job when the sun was not shining. We applied one-half ton hydrated lime to the acre. Our observation has taught us that there are more failures with alfalfa because of lack of lime than for any other reason. It is a well known fact that one of the reasons for its success under Western irrigation is the plentiful supply of lime in the soil which has not been washed out by rain, as is the case in the East. Alfalfa needs a well drained soil, as it is a crop which won't stand "wet feet."

Preceding our alfalfa we had a crop of oats which we cut for hay and then thoroughly fitted the ground, making a fine seedbed. We sowed the seed the latter part of August, using 20 pounds to the acre. We think this better than spring seeding with a nurse crop, as the first frost kills the weeds and the alfalfa gets a good start during the fall and early spring, so as to give a heavy cutting the next summer. Without our alfalfa and corn we could not get along this year.

G. H. D., Meetze, Va.—In preparing land for alfalfa I always aim to turn under a cover crop of winter rye and Crimson clover the fore part of June. This green manure enriches the soil as well as storing up a supply of moisture. I fallow the field for two months during the summer, working it four or five times with a double-action disk harrow, pulverizing roller and drag, so as to keep the soil well mulched and prevent surface evaporation and in order to firm and settle the ground and provide an ideal seedbed for the reception of the alfalfa.

I always sow 6 to 8 pounds of alfalfa seed in all my grass mixtures, so as to gradually inoculate the land for the profitable culture of this leguminous crop. I now use about 500 pounds per acre of inoculated soil from an old alfalfa field in preparing new seedings, distributing the soil on a cloudy afternoon and immediately harrowing it in so as to preclude the danger of injury from sunlight. I also have successfully used liquid culture furnished by the Federal Department of Agriculture, which I have sprinkled over the seed spread out thinly on a canvas. Then I raked the seed back and forth until all of it was moistened and allowed it to dry. In the field, by the use of empty sacks, I protected the seed from excessive exposure to direct sunlight after it was inoculated. Usually one quart of the culture would inoculate enough seed for five acres.

Ground limestone from the state lime grinding plant costs me 75 cents per ton. I used two tons of ground limestone and one-half ton of burnt lime per acre in preparing for alfalfa as the soils in my locality are extremely acid, due to continuous cropping. I planted 25 pounds of seed per acre with 400 pounds of 16 per cent. acid phosphate in a grain drill without pressure, using a brush harrow to cover the seed. On the $50 land of my section it is a hard matter to secure good stands of alfalfa, as it is not a natural grass country. This is why I exercise every precaution in catering to the likes and dislikes of this matchless hay crop. The income from the crop always pays big dividends on my investment.

E. E. B., Pomfret Centre, Conn.—For a number of years we have sown our alfalfa the first week in August if there was sufficient moisture in the ground to warrant it. Our usual practice is to take ground that was in corn the previous year and sow to oats in the spring. As these are always mowed green for hay they are off early enough for alfalfa seeding. The ground is then prepared by thorough working with double cutaway harrow, to make a finely pulverized but shallow seedbed. Never plow, as that would make too deep a bed and be liable to cause winter loss by heaving. By having a shallow seedbed of pulverized soil the roots spread out in this bed and seem to rise and fall together in freezing and avoid breaking of roots that comes in deeper seedbeds.

For inoculation we use soil from alfalfa fields. We put slow gear on manure spreader and load up and put on a good dose. The first few years we used burnt lime; now we use 2 tons of ground limestone and 30 pounds of seed per acre. Lime, inoculation, shallow seedbed, fall sowing and good seed are the essentials here for alfalfa.

W. A. G., Vincennes, Ind.—We have learned, everything considered, that early fall sowing of alfalfa is the most certain and reliable time for sowing. To get a good stand, and one free from weeds, is what is wanted. Here is the plan of preparing the ground. We plant early Irish potatoes on a heavy clover sod. They are harvested in June. Then we drag the ground level and rebreak a little deeper than the clover was previously turned under. Following this, as often as any grass or weeds sprout, the surface is harrowed. We keep this up until the latter part of August. By that time all weed seed has been sprouted and the plants destroyed. The soil being very mellow, it keeps moist. From the last of August to the tenth of September, drill in quite deep 10 pounds of seed to the acre. Then for winter protection scatter a coating of strawy manure over the surface. It will at once come up clean and get a fine start by winter.

C. B. McG., Caldwell, O.—We had a field that contained a number of stumps and boulders and some briars, brush, etc. I removed the stumps and boulders by the use of dynamite, and cut the briars and brush. We plowed the ground early and planted in corn and raised a large crop. In the fall after cutting the corn we drilled the field in wheat with a mixture of Alsike and Red clover. After cutting the wheat we sowed the alfalfa.

The land was a limestone soil and we did not need to supply lime. I believe the commercial culture is the best and cheapest method of inoculation, as this only costs us about $2 per acre and is easy to apply.

The other method is by using soil from a field of alfalfa. I do not remember the amount of alfalfa seed used per acre. Alfalfa should have a deep, loose soil, so the roots will penetrate deeply, and it will not winter-kill. Where the ground is very tough or the soil underlaid with hard material it is very profitable to subsoil by the use of dynamite. The action of the explosive will loosen up the soil so the moisture will penetrate and be able to reach the alfalfa roots. Alfalfa has been very profitable for us, as we harvest three crops per season.

W. H. R., Palm, Pa.—Two years ago I sowed some alfalfa after the oats had been harvested and it was so successful that I expect to do it again this year. As soon as the oats were off the land it was manured at the rate of 12 tons per acre and plowed on August 23rd. It was harrowed twice with the disk and then two-thirds of a ton of caustic lime was slaked and applied to each acre and again harrowed, making the ground in fine condition. It was next rolled and the alfalfa, which had been treated with culture obtained from the U. S. Bureau of Plant Industry, was sowed with a wheelbarrow seeder at the rate of 20 pounds per acre and then harrowed in with a spike-tooth harrow.

I consider well drained land the first essential to success. On a small space of about 100 square feet which is a little low and upon which the water sometimes stands, the alfalfa all heaved out last winter. Inoculation is necessary on soil which has not grown alfalfa before. I would not think of trying to grow it without liming. I also believe it is a good plan to use hardy Northern seed.

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This is the farm women's *own* department—for them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

JULY 15.—What are you doing toward making an exhibit of "women's work" at the fair this year? Tell us in not more than 250 words what steps you take to win, what you make, what kind of containers you use and how you arrange it to present the most attractive appearance.

AUGUST 1.—Tell us three unusual ways you use cucumbers, squash, carrots or okra in cooking for your family. What ways do you prepare them, either alone or in combination? Tell us three ways for one vegetable or a different way for three vegetables.

AUGUST 15.—Have you made any changes in your family baking since wheat flour has advanced in price? Have you had any success using rye or graham flour? How do you make your best bread?

Get your contribution in early If it does not reach us at least 15 days before the date of issue, it will be too late.

Making Jelly

CURRANT JELLY.

Miss B. C. E., Cornwallville, N. Y.—Pick currants when dry, stem and cook slowly, without any water, stirring often to prevent scorching; cook until soft, put in jelly bag and drain over night. In the morning measure, allowing one pound of sugar to one pint of juice. Boil juice for about five minutes after it gets boiling good, then add the sugar, which has been heated in the oven, let it boil up nicely and pour in molds.

Sometimes we use part raspberries with the currants. For the nicest jelly we do not squeeze the bag, but cook the juice which has drained off by itself. This makes a quivery jelly which will stand alone. We squeeze what is left, which makes a more solid jelly, as more of the pulp gets in it.

We use ½-pint jelly glasses and a few beef jars for the jelly. When it is cold we pour melted paraffine over the top to keep it from molding, then put on the covers.

We think one of the secrets of having nice jelly is to drain it over night. It seems to jell quicker and easier. The children are especially fond of it on bread and in jelly cookies.

CHOKE CHERRY JELLY.

Mrs. F. W. M., Tully, N. Y.—When I heard a Wisconsin housewife enthuse about choke cherry jelly I thought it might do where other fruits were unobtainable, but not for New Yorkers. However, I made a batch and it was so good to use we have had it every year since.

Select bright red choke cherries just beginning to turn dark, pick over, wash thoroughly and simmer slowly in scant supply of water (not covered with water; I add enough water so that I have to tilt the kettle sideways to see the water). Drain through jelly bag and measure juice and sugar. (For 12 cups of juice I use 10 cups sugar.) Boil juice briskly five minutes, add heated sugar and boil until it jells when cool.

STRAWBERRY JELLY.

Miss K. S., Easton, Md.—One of our family's favorite jellies is made from strawberries, and while a little more difficult to make than most other jellies, we generally use for this purpose the surplus juice of all the berries canned. After the berries are washed and drained they are put on the stove with a little sugar to heat slowly. When hot through there will be a large amount of juice—more than we like to can with the berries. With a flat dipper take out most of the liquid and strain through a cloth. Put on the stove and boil down to one-half the amount. This is done more quickly if only a small quantity of juice is put in each vessel and the jelly does not get so dark as if cooked longer. Strain again, measure and add as much sugar as juice. Let boil a few minutes and it is ready for the glasses. We prefer those holding about two-thirds of a pint. When the jelly is cold, pour melted paraffine over the top and put on the tops. We make jelly of all the extra juice of blackberries, plums, etc., in the same way, then can the fruit.

DEWBERRY JELLY.

Mrs. D. J., Cream Ridge, N. J.—Our favorite jelly is made from the wild running blackberry or dewberry. I first pick over the berries, freeing them from all stems and leaves. After washing them carefully I put them on to cook in an enameled kettle with just enough water to prevent sticking to the kettle. When they have cooked up so that they seem very juicy I strain them by hanging in a jelly bag over another kettle to drip out the juice. I usually let them hang over night. The next morning I measure the juice, adding as many cups of sugar as I have of juice and put on the back of the stove where it will not cook too fast. It usually takes about half an hour to jell; I test it by dropping a few drops on a cold saucer. I always use the ordinary half-pint jelly glasses, as they seem most convenient, covering first with waxed paper and then the tin lid. I never have any trouble with any of my jelly molding, and I make apple, crab apple, quince, grape and strawberry the same way.

APPLE JELLY.

Miss J. F. S., Uniondale, Pa.—We make apple jelly as follows: Select good sour apples which are not quite ripe; wash and cut up, skins, cores and all. Place in a granite or aluminum kettle on the stove and let cook until the skins are loose but not until pulpy. If the apples are cooked too long the jelly will look cloudy. Strain through a cloth bag, place on the stove and boil for 20 minutes. Then add two-thirds as much sugar as juice. Always warm the sugar, so the boiling will not stop. Boil 20 minutes longer, pour in glasses and when cool pour melted paraffine over the top and place covers on. We use jelly glasses and small size beef glasses for jelly and conserve.

WILD BLACK RASPBERRY JELLY.

Mrs. H. B. L., Arlington, N. Y.—I make a number of kinds of jelly for my family, but the one they like best of all—and never seem to tire of—is jelly made from the wild black raspberry, sometimes called "black caps." I gather the berries before they are very ripe, wash, drain and put in kettle with a small amount of water to keep from burning. After they are cooked up sufficiently—and sometimes, if I am in a hurry I mash the berries while cooking, with a wire potato masher—I drain in cheesecloth bag.

To every pint of juice I add a pint of sugar and boil until a tablespoonful of juice, when let slowly fall from the side of the spoon, will form two drops at the last—then it is done.

The jelly glasses are then well sterilized with boiling water, the jelly poured in, and as soon as it has cooled I cover with paraffine.

This jelly is not so very stiff, but it keeps its shape fairly well and has a most delicious flavor. I like the half-pint glasses for family use. I also save all the glasses in which peanut butter, etc., come. These are very small and when filled with the different jellies a half dozen glasses make a nice little Christmas remembrance.

BLACKBERRY JELLY.

L. H. B., Doylestown, Pa.—The jelly best liked by my family is blackberry jelly, and I am giving you the receipt that I use, and that my mother has used for forty years with success: Boil blackberries until soft, strain through cheesecloth, measure and boil strained juice 20 minutes. Meantime heat equal quantities (cup for cup) in a large pan in the oven. The sugar is not to be melted or browned, but only heated through. When the juice has boiled 20 minutes, add to it this heated sugar and boil three minutes longer. Then put it into sterilized glasses immediately. Cover with circles of paper to fit the top, dipped first into a saucer of whiskey. If you have jelly glass covers, use those; if not, then after the circle of paper is placed on the jelly surface, tie a piece of light wrapping paper over top of glass and fasten the folds with a little raw egg white (albumen) applied with the finger.

Made in this way your jelly will keep for years. I always cut out the circles of paper a week before and then I have them ready when I need them. My jelly glasses are the regulation half-pint size, and I use the saturated paper and tin cover for all jellies.

GRAPE JELLY.

A. B. L., White River Junct., Vt.—Our favorite jelly is grape jelly, which, made in the following manner, is translucent, of exquisite color and is delicious to the palate: Put the grapes in a preserving kettle and set it on the range where the fruit will heat gradually, but be in no danger of burning; when all the juice is extracted, pour the contents of the kettle into the jelly bag, hang it over a bowl and let the juice drop through. On no account use pressure. It may be left over night to drip. To each pint of clear juice so extracted add one pound of granulated sugar. Put the sugar in the oven on flat dishes and let it dry and become thoroughly hot. Boil the grape juice for five minutes and then add the hot sugar. Let the syrup reach the boiling point and then remove immediately from the stove. Pour in jelly glasses that hold about half a pint. When perfectly cold pour melted paraffine over the top. Then tie over the top of each tumbler a paper labeled and dated, and keep in a cool, dry and dark place.

I use the grapes remaining in the jelly bag for marmalade, by sifting out the seeds and skins and sweetening to taste. Or they may be pressed and a second grade of jelly made.

ELDERBERRY JELLY.

Mrs. N. L. A., Massillon, O.—Elderberry jelly seems to be a favorite at our house. I like to take the berries when real ripe, stem, wash and cook thoroughly and then strain through a muslin bag while hot. If left stand until cool they do not strain well. Green grapes or crab apples are the nicest to put with the berries, but tart apples will do. I cook and strain these and then take half and half of each and add as much sugar, by measure, as juice. The jelly is nicest when cooked quickly with 1½ or 2 quarts at a time. I try it by putting a little in a saucer and setting in a cool place, and when it drops thick from the spoon, while still warm, I remove from the fire, put in tumblers and cover with a cloth or paper. When they have cooled enough to form a little crust over the top, pour on a little melted paraffine, let stand until cold, put on lids or tie paper over the tops and put in a cool, dry place. I don't buy many tumblers, but use any vessel that I don't need and which will hold jelly. Here are a few words that help another who is trying to economize. Last fall I canned a lot of berry juice because sugar was so high, and through the winter I made jelly by sweetening the juice and thickening it with a little corn starch

Cold Pack Canning

In continuation of our article on this subject in the June 15th issue, we want to tell the methods O. H. Benson, the U. S. Department of Agriculture expert, uses in his work. Products may be successfully canned by following his instructions, with no other equipment except what is already in hand or can easily be obtained. A thermometer, paring and coring knives, wiping cloths, a convenient table for work, plenty of fresh, clean water near at hand and a clock for checking the time as given in the receipts, will all be found useful. Some people have found an alarm a great help by setting it to go off after the required time has elapsed, so that they can devote all their attention to something else in the meantime. No special form of glass jars is necessary, although the wide-mouth ones enable the products to be packed neater. If tin cans are used you will need soldering flux, lead, salammoniac, a soft brick, capping iron and tipping steel.

ROOT AND TUBER VEGETABLES.

For such vegetables as carrots, parsnips, beets, turnips, sweet potatoes, etc., proceed as follows: Grade for size, color and degree of ripeness. Wash thoroughly. Use vegetable brush. Scald in boiling hot water sufficiently to loosen skin. Plunge quickly in cold water. Scrape or pare to remove skin. Pack whole or cut in sections or cubes, as required by the home or market standard. Add boiling hot water and one level teaspoonful of salt to the quart. Place rubbers and tops in position. Partially seal, but not tight. (Cap and tip tin cans.) Sterilize 90 minutes in hot-water bath outfit; 75 minutes in water-seal outfit; 60 minutes in steam-pressure outfit under 5 pounds of steam; 35 minutes in aluminum pressure cooker under 20 pounds of steam.

CANNING TOMATOES.—Grade for size, ripeness and color. Scald in hot water enough to loosen skins. Plunge quickly in cold water. Remove. Core and skin. Pack whole. Fill container with whole tomatoes only. Add one level teaspoonful of salt to each quart. Place rubber and cap in position. Partially seal, but not tight. (Cap and tip tin cans.) Sterilize 22 minutes in hot-water bath outfit; 18 minutes in water-seal outfit; 15 minutes in steam-pressure outfit under 5 pounds steam; 10 minutes in aluminum pressure cooker under 20 pounds steam. Remove jars. Tighten covers. Invert to cool and test joints. Wrap jars in paper and store.

CANNING SWEET CORN ON COB.—Can corn the same day picked. Remove husks, silks and grade for size. Blanch on the cob in boiling water 5 to 15 minutes. Plunge quickly in cold water. Pack ears, alternating butts and tips, in half-gallon glass jars or gallon tin cans. Pour over boiling hot water and add 2 level teasponfuls of salt to each gallon. Place rubbers and tops in position. Seal partially but not tight. (Cap and tip tin cans.) Sterilize in hot-water bath outfit 180 minutes, one period; 90 minutes in water-seal outfit; 60 minutes in steam-pressure outfit under 5 pounds steam; 35 minutes in aluminum pressure cooker under 20 pounds steam. Remove jars. Tighten covers. Invert to cool and test joints. Wrap glass jars with paper and store. When sweet corn is taken from jar or tin can for table use, remove ears as soon as jar or can is opened. Heat corn, slightly buttered, in steamer. Do not allow ears to stand in water or to be boiled in water the second time.

CANNING SWEET CORN CUT FROM COB.—Can the same day as picked. Remove husks and silks. Blanch on the cob in boiling hot water 5 to 15 minutes. Plunge quickly in cold water. Cut the corn from the cob with a thin, sharp-bladed knife. Pack corn in jar tightly until full. Add one level teaspoonful of salt to each quart and sufficient hot water to fill. Place rubber and top in position; seal partially, but not tight. (Cap and tip tin cans.) Sterilize 180 minutes in hot-water bath outfit; 90 minutes in water-seal outfit; 60 minutes in steam-pressure outfit under 5 pounds of steam; 35 minutes in aluminum pressure cooker under 20 pounds of steam. Remove jars. Tighten covers. Invert to cool and test joints. Wrap with paper and store.

LIMA BEANS, STRING BEANS, PEAS, OKRA, ETC.

These should be canned same day as picked. Cull, string and grade. Blanch in boiling hot water for 2 to 5 minutes. Remove and plunge quickly in cold water. Pack in container until full. Add boiling hot water to fill crevices. Add one level teaspoonful of salt to each quart. Place rubbers and tops in position. Partially seal, but not tight. (Cap and tip tin cans.) Sterilize in hot water bath outfit one period of 120 minutes; 90 minutes in water-seal outfit; 60 minutes in steam pressure outfit under 5 pounds steam; 40 minutes in aluminum pressure cooker under 20 pounds of steam. Remove jars. Tighten covers and invert to cool. Wrap jars in paper and store.

PUMPKIN AND SQUASH.

FOR PIE FILLING.—Cut up into convenient sections. Cook and remove skins. Cook for 30 minutes to reduce to pulp. Pack in glass jars or tin cans. Add 1 cup of sugar and 1 teaspoonful of salt to each quart of pulp. Place rubber and top in position. Partially seal, but not tight. Sterilize 60 minutes in hot-water bath outfit; 50 minutes in water-seal outfit; 40 minutes in steam-pressure outfit under 5 pounds of steam; 30 minutes in aluminum pressure cooker under 20 pounds of steam. Remove. Tighten covers. Invert to cool and test joints. Wrap in paper and store.

VEGETABLE GREENS.

Vegetable greens, both wild and cultivated, cabbage, Brussels sprouts and cauliflower can all be canned by practically the same method. The slight variation in amount of time required for blanching, seasoning, etc., will have to be learned by experience. The following receipt will be found satisfactory: Prepare and can the day picked. Sort and clean. Blanch in a vessel with a little water under false bottom or in a regular steamer, 15 to 20 minutes. Remove. Plunge quickly into cold water. Cut in convenient lengths. Pack tight in jar or container and season to taste; add a little chipped beef, olive oil, etc. Add hot water to fill crevices, and a level teaspoonful of salt to each quart. If using glass jars place rubber and top in position, partially seal; if using tin cans, cap and tip completely. Sterilize 90 minutes in hot-water bath outfit; 60 minutes in water-seal; 50 minutes in steam-pressure outfit under 5 pounds of steam; 25 minutes in aluminum pressure-cooker outfit at 15 pounds of steam. Remove from canner. Tighten covers. Invert to cool and test joints. Wrap in paper to prevent bleaching, and store.

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Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILA'DA, PA.

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8332.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in one piece and may be made with or without the fancy belt.

8330.—Girls' dress. Cut in sizes 6 to 14 years. The dress closes at the back and has a straight gathered skirt, cut in one piece.

8343.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in four gores and may be made with or without the large side pockets and sash.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA

The Editor's Book Review

Below are comments on some of the more recent books which have come to the editor's desk from their publishers. The modern farmer is a reading farmer of course, and like other business men we believe our farmers are building up libraries by the occasional purchase of books on farm subjects in which they are interested; in no other way can a farmer improve so rapidly or substantially in his chosen calling as by reading the best in farm papers and books and preserving for reference the written accounts of the experiences of others.

For our readers convenience, we will be pleased to furnish at the publishers prices any of the books reviewed below, or any other obtainable books on farming. Further, we will be glad to give suggestions regarding books on any given farm subject on receipt of request with stamp for reply.—The Editor.

THE ESSENTIALS OF AGRICULTURE, by Henry Jackson Waters, President of the Kansas State Agricultural College. (455 pages, abundantly illustrated, partly in color. Ginn & Co., Boston, $1.25 net.)

This book has been written by Dr. Waters primarily as a textbook with the co-operation of leading specialists and teachers of agriculture. It is interestingly written, up-to-date in its methods and admirably adapted for high schools, normal schools and brief courses in colleges. Actual farm practices are given as the basis for the development of scientific agriculture and it will prove a valuable addition to any farm library, as the material is arranged in excellent form for reference on almost any agricultural subject.

THE FEEDING OF ANIMALS, by Whitman Howard Jordan, Director of the New York Agricultural Experiment Station. (463 pages, illustrated, The Macmillan Co., New York, $1.75 net.)

This is a new and revised edition of one of the early volumes in the Rural Textbook Series, of which Dr. L. H. Bailey is editor. While prepared primarily as a textbook, which purpose it has well served through several reprints since 1901, this book is worthy of a place in any live stock owner's library. Each day as farming calls for better methods, the efficient use of animals for converting raw materials into finished products is being seriously considered and this volume treats the subject fully.

THE BREEDING OF ANIMALS, by F. B. Mumford, Dean of the Missouri College of Agriculture. (304 pages, illustrated, The Macmillan Co., New York, $1.75 net.)

This is one of the recent additions to the Rural Textbook Series, of which Dr. L. H. Bailey is editor. For the student of animal husbandry and to the practical breeder of animals this book has a wealth of valuable information. Its teachings can be applied in the everyday work of a stock farm although some of them are problems which have existed since animal life started.

PRINCIPLES OF FEEDING FARM ANIMALS, by Sleeter Bull. (397 pages, illustrated, The Macmillan Co., New York, $1.75 net.)

In these days of high priced feed it is especially needful that the feeder be acquainted with the scientific principles underlying the art of stock feeding. This book presents this information in such a way that it is clearly understood and useful to the farmer, or can be used as a textbook. For the inexperienced feeder the author presents definite rules for the feeding of different classes of live stock.

THE POTATO, by Arthur W. Gilbert, of the New York State College of Agriculture (Cornell). The Rural Science Series. (The Macmillan Co., New York, 313 pages, illustrated, $1.50 net.)

This is an excellent treatise on the growing, breeding and marketing of potatoes. Special chapters on diseases and field methods have been written by Mortimer F. Barrus, of Cornell, and Daniel Dean, respectively. This book has been written especially for the practical farmer who wants concise information, and it should prove valuable to any grower of potatoes.

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(To whom tie is to be sent)
P. O.....R. F. D.....STATE.....

Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

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CHAPTER XVI.

WHERE ANGELS FEAR TO TREAD.

The morning following the heterogeneous accession to the Dale family, Joel did not leave his bed. Whether his disability was in part or altogether due to a desire to open his sister's eyes to the result of her lack of consideration, Joel himself could not have told, the correct interpretation of one's own motives being the most complex of the sciences. It really seemed to him that he felt very ill and he found a somber satisfaction in reflecting that in the event of his death, Persis would realize her appalling selfishness. "'Twon't come much short of murder," he thought with gloomy relish.

Joel's periods of invalidism had been too frequent and prolonged for this sporadic attack to upset the peaceful order of the household. Persis attended to his needs with her usual matter-of-fact kindness, though he suspected that her thoughts were with the new claimants on her interest and found therein fresh fuel for his grievance. Later when he called his sister in the feeble voice of the moribund and learned from Mary that she had gone out to enter the older children in school, he felt himself a much injured man. But this melancholy satisfaction was brief, for Persis was back in half an hour, looking in at his door to ask cheerfully if there was anything he wanted. "Nothing I'm likely to get," replied Joel and turned his face to the wall.

Then, too, the house was quiet. Occasionally the baby's fretful voice reached his ears, or Celia's bubbling, irrepressible laughter; but the tumult on which he had counted confidently as a factor in his discomfort was lacking. At noon, indeed, the older children came in with a shout, brimful of communications too important to wait, so that the three all talked at once, each voice upraised in a laudable endeavor to drown out the other two. But just as Joel was telling himself that it was intolerable, enough to drive a man out of his seven senses, the announcement of dinner produced an agreeable lull in the uproar. And when the baby was taken up-stairs for its nap and Celia cautioned to discretion, the quiet became even more profound. Joel found it necessary to prod his sense of grievance to keep it in action.

He had been awake much of the preceding night, brooding upon his wrongs, and weariness at length asserted itself and he fell asleep. He woke with a thrilled consciousness of a light touch on his forehead and for a moment he thought himself a child again, with his mother bending over him. Demonstrativeness had never been a Dale characteristic. Indeed the traditions of the community discouraged manifestations of affection as an indication of weakness, but few mothers as they stand beside their sleeping children can resist the sweet temptation to kiss the little unconscious faces. And Joel Dale, prematurely aged, selfish and embittered, woke nearer his childish self, and nearer Heaven, than he had been in many a year.

For a moment he lay bewildered, then opened an eye. An elfin voice beside him commented on the fact. "Half of you's awake and half asleep. Ain't that funny?"

Joel's two eyes came into action long enough to perceive Celia, sitting in a chair drawn close to the bed. Her sturdy legs were crossed, her hands folded. She looked dangerously demure.

"I gave you a kiss when you was asleep, a pink one. Do you like pink kisses?"

"Pink?" he repeated, too startled by the choice of adjectives to realize how long it had been since any one had kissed him.

"Aunt Persis let me have some jelly," Celia explained. "I like to lick my lips off, but I didn't so I could give you a nice pink kiss."

He put one hand hastily to his forehead, thereby verifying his worst suspicions. It was sticky. Joel groaned.

"Want me to 'poor' you?" the fairy voice inquired with an accent indicating a sense of responsibility. A small hand moved over his unshaven cheek. "Poor Uncle Joel! Poor Uncle Joel," cooed Celia. She interrupted her efforts to ask with interest, "Do you like your skin all prickles? Mine ain't that way," and proved her statement by laying a cheek like a rose leaf against his. Joel shrank away gasping.

"Want me to tell you a story?" Celia did not wait for Joel's assent. The ministering hand nestled against his cheek; she drew a long breath and began.

"Once when I was a little girl, there was a giant lived up by my house. And he was an awful wicked giant, and he used to bite people's heads off. And he wanted to fight everybody, and everybody was scared 'cept just me." She paused, overcome by the contemplation of her own heroism. "Wasn't that funny? Everybody was 'fraid 'cept a teenty weenty girl."

Joel lay staring at his entertainer, his expression suggestive of such excitement, not to say horror, that the narrator apparently found it inspiring.

"And the old giant kept a-talking and a-talking and a-biting and a-biting. And one day I took my bow'n arrow—No," she corrected herself sternly, with the air of one who refuses to deviate ever so slightly from the strict facts. "I took my sling and some stones I found in the brook—"

Joel suddenly realized his responsibility as a mentor of youth. Look here! Look here! I can't have such talk. You're making that up out of your own head. You never lived near a giant, and I don't believe you ever had a sling."

"Oh, yes, I had a sling, Uncle Joel, and once I shooted a bear with it—and a Indian."

"I guess you haven't been very well brought up," rebuked Joel, who like most people of his type was quite unable to distinguish between the gambols of the creative imagination and deliberate falsifying. "Don't you know where little girls go when they tell lies?"

"I knew a little girl once who telled lies," admitted Celia, her shocked accents indicating her full appreciation of the reprehensible character of the practice. "And she went to the circus. Her uncle took her."

From under the bed clothing came a peculiar rasping sound like the grating of a rusty key in a lock long unused. It was no wonder that Celia jumped, though she was considerably less startled than Joel himself. He had laughed, and more appalling still, had laughed at unmistakable evidences of natural depravity which by good rights should have awakened in him emotions of abhorrence.

"It would be pretty serious for me to backslide now, considering the state of my health," reflected Joel. He attempted to counteract the effects of that indiscreet laugh by a blood-curdling groan, and this demonstration caused Celia to repeat her calming ministrations, smoothing his rough cheek with velvety hands, and inadvertently poking one plump forefinger into his eye. Joel blinked. He could easily have ordered her from the room, but he did not exercise this prerogative. He was vaguely conscious of an unwarranted satisfaction in the nearness of this pixy. Her preference for his society flattered his vanity. He observed her guardedly from the corner of his eye. Undoubtedly she was a very naughty little girl who told wrong stories and was painfully lacking in reverence. But at the same time— Joel chuckled again, his vocal chords responding uncertainly to the unfamiliar prompting—at the same time she was *cute*.

At the supper table the evening before for all his gloomy abstraction, Joel had noticed Betty's engaging prettiness and had thought *apropos* of Celia, "Persis never picked that young one out for her looks." Now through half closed eyes he studied the small piquant face and found his opinion altered. Celia was not pretty. Her straight black hair, just long enough to be continually in her eyes, was pushed back for the moment so as to stand almost erect like a crest. Her small nose had an engaging skyward tilt. She was dark and inclined to sallowness. But the twinkling black eyes under the level brows would have redeemed a far plainer face. Had Joel been of a poetic temperament he would have compared Betty to a pink rose bud, and Celia to a velvety pansy, saucy and bewitching.

Mary, coming up the stairs with a bowl of broth, stood in the doorway petrified. Under her spatter of freckles, her comely face was pale.

"Miss Dale thought—" She seemed unable to proceed and stood swallowing. Celia straightened herself with a jerk.

"Oh, goody! We'll play tea-party, Uncle Joel. No, we'll play mother. You're my sick little boy, Uncle Joel, and I'll feed you. Give that to me, Mary."

Like a person hypnotized Mary advanced and delivered the steaming broth into Celia's extended hands. Setting the bowl firmly on one knee, Celia ladled out a generous spoonful.

"Open your mouth, darling, and swallow this nice broth. It'll make mamma's little boy a big strong man."

The soup spoon journeying in Joel's direction tilted dangerously. Half the contents splashed upon his cheek and ran in a greasy dribble down his neck. The remainder distributed itself impartially in the vicinity of his mouth, a few tantalizing drops finding their way between his parted lips.

"Land alive!" Mary made a horrified forward rush. "You're a-drowning Mr. Dale. And look at you, wasting that nice soup, too.'

Joel frowned and Mary drew back abashed, quailing before his disapproving glance.

"I guess if I was being drowned I'd have the sense to mention it. And nobody's going to the poorhouse because a little soup gets spilled. Some of the professions are pretty crowded, Mary, but there's one where there's room at the top and at the bottom, too, and that's the one of minding your own business."

Poor Mary blushed till her proximity to things inflammable would have awakened justifiable fears of a conflagration. Joel gave his attention to his self-appointed nurse. "Steady now! Better take a little less to start with. That's right. Now steer her straight."

The second spoonful reached its destination without serious accident. Celia watched her patient as he swallowed and forgot the role she had assigned herself.

"Is it good, Uncle Joel?"

"Uhuh! Pretty fair." Joel felt for his handkerchief and wiped the moist corner of his mouth.

"I'm going to taste it." Celia tilted the spoon to her own lips and sipped with appreciation. "Uncle Joel," she said thoughtfully, "if you're afraid this'll spoil your appetite for supper, I'll eat it."

Again Joel chuckled. This made the third time in quick succession, and practice was giving him surprising facility. But unwarned by past experience, Mary put in her word. "Poor Mr. Dale hasn't eaten scarcely a mouthful today, and here you've had bread and jelly since dinner."

Joel's unaccustomed smile was at once obscured. "Mary, a considerable spell back a wise man said, 'Every fool will be meddling.' If you aren't familiar with the author, Mary, it would pay you to read him." Again he gave his attention to Celia. "We'll share this turn and turn about," he compromised. "First you have a spoonful and then me."

Mary withdrew unheeded. Though tremendously in awe of the impecunious and futile Joel, Mary felt no sense of diffidence where the efficient Persis was concerned, and at once went to find her. But Persis, who sat in one of her new bay windows, the baby on her knee, was entertaining Mrs. West, while her benignantly maternal eyes watched three children playing outside.

"I declare you could have knocked me down with a feather, Persis, when I heard it," Mrs. West declared, her portliness rendering the figure of speech extremely impressive. "I wouldn't have thought queer of one or even two, but a whole family."

"A family's what I've always wanted," Persis returned with the cheerfulness of a woman whose life-long dream has come true. "And if I could have found enough of the sort I was after, I'm not sure I'd have stopped short of a round dozen."

"It's a responsibility," sighed Mrs. West. "They're kind of like playthings to you now. You'll feel it later."

Persis looked at her with kind eyes. "I haven't added any new responsibility in taking these children, Mis' West. It was there just as soon as the money and leisure came to me, and I've made a start toward meeting it, that's all. We don't make our responsibilities; we just wake up to 'em."

"I must say you take to it like a duck to water," acknowledged Mrs. West in conciliatory accents. "Some women are just as unhandy with a baby as a man. Sophia Warren's one. Once or twice I've seen her holding that Newell baby that lives next door, and she looked as stiff and scared as if she was setting for her photograph."

She leaned forward to watch the frolicsome children from the window. "They're real nice looking, Persis, I will say that. One, two, three and the baby's four. Somebody said five."

With a start Persis recalled the suspicious peace which for some time past had pervaded the establishment. "There's another," she said, "too little for school. Mary! Mary, do you know where Celia is?"

Mary approached. Her consciousness of being a bearer of important tidings communicated itself in some indefinable fashion to the other women. They looked up, alert on the instant.

"Celia's setting up in Mr. Joel's room." Mary gave her great news deliberately as if to enjoy the full flavor.

Persis started to her feet. Mrs. West raised her hands with an eloquent gesture.

"Has he got one of his bad spells?" she demanded. "And that child in his room. Well, fools rush—"

"She's playing he's her little boy," explained Mary, making the most of the sensation of being an actor in a real drama. "She fed him his soup and slopped him, but he took me up sharp when I tried to stop her. He acts as if she's got him clean bewitched."

"Well!" exclaimed Mrs. West, as Persis looked at her dumbly. "I never expected to live to see that Scripture fulfilled. The wolf and the lamb lying down together and a weaned child in a cockatrice's den."

"Are you sure he wasn't angry?" asked Persis, still a little pale and doubtful.

Mary bridled.

"Go and see for yourself, Miss Dale, if you don't believe me. When I tried to stop her eating a good half of that broth, and chicken as high as 'tis, he the same as called me a fool for meddling. But you'd better go up-stairs. You won't be satisfied till you've heard for yourself.'

In that Mary spoke truly. Her story was too incredible to be accepted without investigation. Persis' incredulity did not desert her till half way up the stairs she was met by a child's voice, fond and confident.

"Uncle Joel, ain't God cruel to make some dogs without tails?"

And then as her brother's unfamiliar laugh reached her ears, Persis turned and went softly down the stairs.

(Continued next issue.)

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Horses are Indispensable in War

COLONEL HENRY J. REILLY

The following timely article was written by a regular army officer, who has just returned from the battle fields of France, and it has been sent to the agricultural press by Wayne Dinsmore, secretary of the Percheron Society of America.

There seems to be a rapidly increasing opinion that the day of the horse in war has passed. The nearly three years of warfare in Europe has shown this to be an entirely erroneous idea. On the eastern or Russian-Roumanian front where there are few good roads, in other words where the road conditions are somewhat similar to those which ordinarily obtain in the United States, the horse has not only held his own for the mounted services, such as cavalry and artillery, but also for supply purposes. Again and again the armies operating on this front have found the arrival of supplies and ammunition dependent upon the use of horse transport. Even on the western front where the road system is probably the best in the world, mechanical traction has not been able to displace the horse. In general, it might be said that the line between mechanical and horse traction on a battlefield is the extreme limit of the enemies' artillery fire when any heavy action is going on. The horse is used on the battlefield and the mechanical traction in rear of it. Of course during calm periods, mechanical traction is used along the rear part of the battlefield. There are various reasons for this division. Probably the main one is that batteries frequently must be placed and supplied in positions some distance from a road. Often the country to be traversed is so rough that a tractor cannot get over it. If the army is operating on conquered ground, this ground generally is so cut up with old trenches and shell holes that horse traction and only horse traction is practicable. Frequently the mud is so deep that mechanical traction is helpless. In many cases the situation is such that no wheeled carriages of any kind can move. In such cases pack animals have to be used.

So well are these conditions recognized that in spite of the tremendous weights of heavy artillery material and the slowness and difficulty of moving them by horse traction, it is considered that only half the heavy batteries should have mechanical traction. The remainder are horsed and thus the means is always available to move the batteries no matter what the difficulties. Therefore, in general it may be said that an army must still have animals for all its cavalry, the usefulness of which is far from disappearing; it must have horses for all its light field artillery, half its heavy field artillery, and all its regimental and divisional supply trains. Incidentally every regiment of infantry must have several hundred horses and mules. The more the question is examined, the more two facts stand out. The first is that certain work in modern warfare can only be done by horses. The second is that the number of horses needed for armies which are counted by the millions, must be counted by the hundred thousands.

Feeding Work Horses

"Horse power," according to Dr. H. H. Havner, in charge of live stock extension at the Pennsylvania State College school of agriculture and experiment station, "is an important cog in the successful operation of the farm machine this year."

In feeding horses utilize home grown feeds to the fullest extent. The grain combination should depend upon the different feeds on hand and the price of those grains in the community. In a section where corn can be well matured, this grain ought to constitute the greater portion of the concentrated feed for work horses.

Corn alone can be used as a grain feed for work horses if a good quality of alfalfa or clover hay is fed for roughage. When combined with mixed hay or timothy hay, a grain combination of three parts corn and one part oats by weight is a satisfactory mixture.

If oats are scarce and high in price, cotton seed meal or oil meal may be substituted for the protein furnished by the oats. One-third to one-half pound of linseed meal will, with the amount secured through mixed hay, furnish sufficient protein for a 1500-pound work horse. Until the horse becomes accustomed to cotton seed meal, use equal parts of oil meal and cotton seed meal. A general recommendation in feeding cotton seed meal is to give one-fourth to one-third pound at each meal.

Where oats is a major farm crop and only enough corn is produced for silos, oats may be used alone as a grain feed.

A horse at farm work requires from 1¼ to 1½ pounds of grain per 100 pounds live weight daily. Feed grain sufficient to keep the horse in good working condition. Hay may be limited to the standard of a pound of hay to 100 pounds live weight daily. Reduce the grain one-half on days when the horse is idle, to avoid azoturia.

The Karakul sheep breeders have recently organized their interests under the name of the American Fur Sheep Registry. These sheep are the producers of Persian lamb fur and it is hoped by their supporters to popularize them in America so as to save some of the $14,000,000 which is spent annually by our furriers importing these furs. The Federal Government has helped in establishing this breed and it is said that the production of Persian lamb fur is now an assured success in this country. Sheep have been imported from Bokhara and Persia for the foundation stock.

What We Are Asked

A Defective Udder.—R. W. M., Pennsylvania, asks us: "I have a cow with one false teat which does not give milk, only little lumps. Is there a way to overcome that and make all the teats work? Don't a cow with three teats give as much milk as one with four teats? How much does that hurt the value of the cow?"

The proper treatment for a cow that seems to have udder trouble is to bathe the udder with hot water. After this, bathe it with spirits of camphor and paint it with tincture of iodine. It may be that the quarter of the udder is so badly infected that it can not be saved.

A cow with three teats does not give quite as much milk as one with a good udder, although the loss of milk is not 25 per cent. as is sometimes assumed. The depreciation in the value of the cow will depend somewhat upon the individual. Expert cow dealers claim that it makes a difference of from 20 to 25 per cent. of the value. W. H. T.

Turkey Troubles.—Mrs. A. T. D., Virginia, writes us: "I am a raiser of turkeys. I am troubled a great deal with rattles in the throat and I notice a bloody mucous in throat. Please tell me what to do for them. I am also troubled with gapes. Is there any remedy?

Turkeys, as a rule, are not troubled with throat affections. Your case, from the meagre details given, would be diagnosed as bronchitis; the bloody mucous is not recognized as an accompaniment to bronchitis, and some other trouble must be present.

For the rattling in the throat give adult turkeys 1½ grains of black antimony and 2 grains of powdered gentian root, once a day. For the mucous, if it does not disappear with the cessation of the rattles, treat with some mild astringent. A teaspoonful of sweet oil and 10 drops of turpentine will help.

Gape worms can be extracted from the bird's windpipe with a horse hair, l-oped at one end. Treat the ground on which the birds run with lime, sprinkling heavily enough to destroy the earth-worms, the host of the parasitic gape worm. F. V. L. T.

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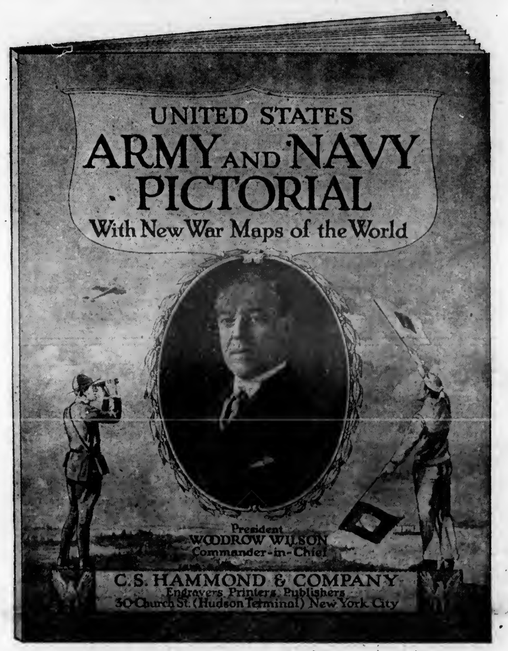

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The Practical Farmer

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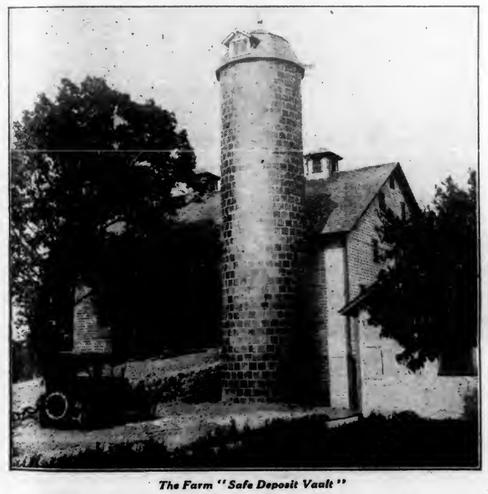
Economic Feeding of the Dairy Herd

By D. H. WATTS



The Farm "Safe Deposit Vault"

THESE are days of much talk of production and less concern as to economical production, the getting of the net dollar while methods are followed that feed the stock while home acres grow more fertile. Hair-splitting balanced ration, pencil operations, are, and have been, the overdone panacea handed the dairyman by would-be aiders to the farmer.

No system of farming is complete that does not embrace a methodical routine of soil treatment and crop production looking to the permanent benefit of the acre and the constant highest production of the herd dependent upon the home acres. The cows whose ears are ever attuned to the rise and fall of the chop bin lid and the Western elevator "Feeds them all" is not the profit herd.

Timely thought and plans in this, as in any other business, is the only escape from loss. What would be the use now, in July, to get busy in sowing peas and oats to supplement short pastures of midsummer or to plant sweet corn for the same period of feeding, much less to sow alfalfa and clover for the needs of this season?

The corn crop is of first importance if the farm is to carry its maximum number of dairy cattle. The silo is not very expensive and affords not only great quantities of feed for the winter season, but also one of the cheapest palatable feeds when pasture fails. The size of the silo should be such that each member of the herd can be fed 35 pounds daily for seven months of the year.

Where a small herd is kept and the owner does not care to use a silo, a good substitute for ensilage is root crops when carefully cultivated and stored away conveniently near the stable. Cow beets or wurzels are best, but if these are not now growing, a liberal sowing of field turnips to have for this purpose are well worth while. We have several times drawn into a root cellar at the barn a lot of leafy, unmarketable cabbage which when fed cautiously in connection with hay and grain stimulated the cows to greater production. The old-time practice of growing pumpkins for early winter feeding in connection with dry feed, has more merit than some would admit.

Rye and winter vetch are one of the very best combinations to sow in the fall to be used as a soiling crop the following summer. This crop has special merit, as has peas and oats also, in that a nitrogen gatherer has been used and the field is improved for the next crop.

Oats and Canada field peas can be sown from the earliest oat sowing days until June, at intervals, to be used as needed as a soiling crop, and the balance, if any, can be made into a rich and palatable hay for cattle or horses.

Upon our farm we use the four kinds of clover, the Medium, Alsike, little White and Luzerne or alfalfa. While we do not grow alfalfa on a large scale, it is on our farm to stay. While I write we have twenty-two hogs and pigs reveling in lots covered with blue grass and alfalfa; they are getting no $60 chop and are growing finely. Near by is a little piece of alfalfa that could be cut as needed to feed the cows as they come from the rough pasture, but as yet it is not needed, so I presume when the weather clears we willl make some alfalfa hay, a commodity our barn is seldom without. As a Dutchman of Lancaster county (Pa.) once said, "I bet fifty dollars and that is what my pocketbook is never wisout."

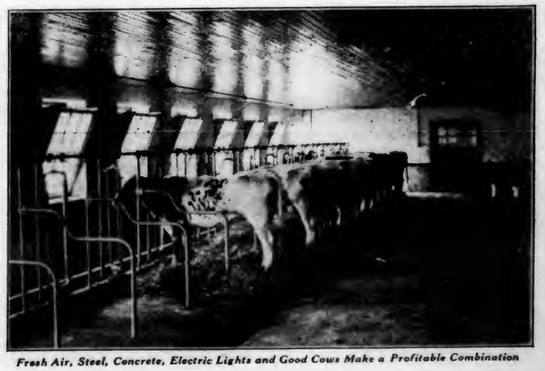
I have this year a field of Red or Medium clover which stands as a good object lesson. There is nothing remarkable about the field if I should not tell you the history of the piece of land prior to securing this perfect stand of clover. About nine years ago this little field (a thin piece of land) was in ensilage corn and after the corn was removed we sowed two bushels of rye per acre on the field. The next May the rye was plowed in and at intervals harrowed, and limed, inoculated (with soil) and on July 20th sowed to alfalfa. Sixty days later the crop was clipped high and allowed to lie on the ground over winter. For five years we harvested three cuttings of hay from the field, fifteen cuttings in all; then as blue grass began to encroach on the alfalfa we concluded to run the field through the old rotation of corn, oats, wheat, clover. The interesting part of this story is this, after cropping the land profitably for high protein hay for the cows we were actually developing more crop power in the acres, as was afterward shown in the yield of all the grain crops that followed, as above stated; the corn gave us almost double the number of bushels ever produced on that field before, and the oats and wheat easily one-third more than the land had ever yielded. The question of fertilizers applied during these years now comes to the mind of the reader and the story of fertilizers bought to feed these good crops is as short as the story of high-priced protein bought to feed the cows that ate the alfalfa hay. Aside from an application of 250 pounds of complete fertilizer per acre at time of seeding the alfalfa and 200 pounds to each acre of acid phosphate at time of seeding the grain crops, no other application was made—none whatever during all the seasons of hay making, except some hen manure applied to a square rod to determine the response of the plants to that form of nitrogen.

It seems to me that this piece of land with the crops that have followed the alfalfa this period of years, terminating in as fine a stand of luxuriant clover as we have ever seen anywhere, demonstrates the wonderful power of alfalfa to store nitrogen in such a soil in abundance for cereal crops and at the same time open up the subsoil to the more feeble roots of the grain plants, thus with the native mineral elements accessible and likely more nearly balanced plant food elements, crop response is manifested.

I would urge dairymen to plan and work ahead for the growing of these legumes, taking no short cuts, such as seeding without sweet soil (liming), inoculation, good seedbed, etc. These plants are constructive, the very heart of the problem of economy of feeding, and are worth all kinds of pains and care.

On all sides we hear of dairy cows being sold on account of the inability of their owners to make both ends meet. In most cases we find the cows are drovers' stock which have been fed on purchased grain. The man who is raising his cows and practically all their feed sees a bright future in dairying.

Pennsylvania.



Fresh Air, Steel, Concrete, Electric Lights and Good Cows Make a Profitable Combination

The Growing of Green Manure Crops

A. E. GRANTHAM

IT is well understood that organic matter is a very important constituent of the soil. Without it no soil is able to produce the maximum crop. So essential is organic matter that the best results from the use of fertilizers and lime cannot be secured without it. Many are the reasons why it is necessary to keep the soil well stocked with organic matter in order to keep it in a high state of productiveness. In the past the vegetable mattter of the soil was largely maintained through the use of a rotation including Red clover. As the soils became more depleted in plant food through several generations of cropping, Red clover became more difficult to grow. At present on most of the farms of the Eastern States and the Middle West a good stand of Red clover is an exception rather than the rule. There are various causes assigned for the failure of this important crop. It is not unlikely that the low supply of organic matter in the soil is largely responsible for this result. The fact is that under the old system of crop rotation in which Red clover was grown once in four or five years did not provide sufficient vegetable matter to keep it supplied with nitrogen and organic material. Thus the average farmer has been working at a disadvantage and his land has become less productive as the years went by, largely through the fact that not enough vegetable material was returned to the soil.

Another main supply of organic matter has been from stable manure. This is no small source of supply, yet unless a large number of live stock are kept there is not enough manure produced to meet the demands of the land. The conservation of manure on the farm is very important and is one of the best means of improving the fertility of the land. However, the tendency has been, in large parts of the country, to keep less rather than more live stock. This tendency has been aggravated from the fact that it is more difficult to grow clover now than formerly.

The situation today is such that most of the tillable land in the eastern half of the U. S. needs a larger supply of organic matter. The question is, how can this demand be met? Now is the time to plan to have a green manure crop to plow under next spring. It has been shown by many experiments that catch crops following the main crops of the rotation can be economically used for green manure. The more extended use of catch crops will not only aid in supplying the needed organic matter, but will allow more forage in the way of pasture for the stock on the farm. There are several crops that may be sown at this time of the year which will produce a good growth of green manure by the time it is necessary to turn the land next spring.

Crimson clover is one of the best crops for this purpose where the climate is mild and the soil loamy and in good physical condition. Crimson clover has been found especially well adapted to all parts of the Atlantic coastal plain, where the sandy loam types of soil predominate. However, Crimson clover is not always a success in the latitude north of Philadelphia. The disadvantage of heavy soils and more northern latitude may be somewhat overcome by seeding the clover earlier in the season. The cheapest and most effective way of sowing Crimson clover is to seed it in the corn at the last cultivation. This is a practice generally followed in those sections of Delaware and Maryland where clover is quite widely grown. The seeding of the green manure crop in a sandy corn does not interfere in any way with the grain crop. Particular attention should be paid to the use of a catch crop if the corn is to be followed by a tilled crop next season.

The advantages of a catch crop are not due entirely to the organic matter it furnishes, but also to the fact that the growing catch crop will take up large quantities of soluble plant food, particularly nitrogen, that would otherwise leach away during the rainy months of the fall and winter. Thus it is good economy to use a catch crop even though the land is not in need of organic matter. Crimson clover may be seeded any time from the middle of July until the middle of August, depending on the latitude and the condition of the soil. No fertilizer need be used at the time the clover is seeded, provided the corn has had a normal amount of plant food. The total expense of seeding an acre of corn with Crimson clover need not exceed $2.50 to $3, at the present prices of seed. If the clover is sown at the last working of the corn the expense is very light. Some men prefer, however, to wait until moisture conditions are just right and sow the seed just ahead of an A-harrow between the rows. About 15 pounds of seed per acre is generally used. Crimson clover is also well adapted to seeding on wheat stubble and oat stubble land, but in this case the ground must be plowed and well fitted in order to supply the necessary moisture for germination. This is a good plan to follow where it is found necessary to plant corn after the wheat crop, as the Crimson clover will generally make a very good growth by plowing time next spring.

Another crop that is well adapted for this purpose is winter vetch. This is coming into greater popularity on account of its wider adaptability to soil and climatic conditions. Then, too, the seed may be planted somewhat deeper than Crimson clover and in that way is less subject to drought during the midsummer season. Vetch is generally seeded at the rate of from 30 to 40 pounds per acre, although a very good stand is sometimes secured with from 20 to 25 pounds. The larger rate per acre and the higher price of seed makes vetch more expensive, generally, than Crimson clover.

The Automobile is a Great Aid in "Making Hay While the Sun Shines" by Transporting Men, Making Hurried Trips for Repairs and Saving the Horses for Road Work

If it is not possible to secure either Crimson clover or vetch it is a good plan to sow rye after corn is removed, in order to supply some growth to plow under next spring. A combination of these three crops is found to be very successful for green manuring. A mixture of 8 pounds of Crimson clover, 12 pounds of vetch and 2 pecks of rye will give excellent results. This mixture also makes an excellent late fall and early spring pasture. This combination may be seeded at the last working of the corn, or later, as was suggested in the case of the Crimson clover. Where the land is open and unoccupied by a growing crop the best method of seeding is to place the rye and vetch in the grain seeding compartment of the grain drill and the Crimson clover seed in the grass seeding compartment. In this way the vetch and rye will be covered at a good depth, while the Crimson clover is covered less deeply. These are the crops that may be used either singly or in combination for keeping the land covered during the fall and winter months, and will be a source of income as pasturage the next spring. Rye has a peculiar advantage of coming on very early in the spring and where a large acreage has been seeded in corn the field may be used for pasture for a considerable time in the spring and thus allow the main pastures to become well started before it is necessary to turn in the live stock.

Another class of catch crops are those which will make all of their growth the remaining part of the summer. These are cowpeas, soy beans and perhaps buckwheat. The beans and peas may be seeded in the corn at the last working. This practice is desirable if the land is to be turned as soon as the corn is removed and planted to some fall-sown crop. Cowpeas sown in corn may be turned under as soon as the corn is harvested and the land sown to wheat. Experiments have shown that cowpeas and soy beans will gather from 40 to 50 pouds of nitrogen per acre, including the tops and the roots of the plant, during the interval between the last working of the corn and the time to plow the land for wheat. Cowpeas and soy beans may be used in like manner for this purpose. The Mammoth Yellow soy bean is one of the best varieties for green manuring, because of its very rapid and large growth.

Buckwheat is sometimes used for a green manure crop, particularly on lands that are of a very heavy clay nature. There is something in the action of the roots of the buckwheat that seems to enliven the stiff soil. Buckwheat, like rye, is a non-legume and for that reason does not increase the total nitrogen supply of the soil. The combination that is used in some cases is buckwheat and Crimson clover seeded together. The clover at the rate of 12 to 15 pounds per acre and the buckwheat at the rate of 3 to 4 pecks. The open growth of the buckwheat allows the Crimson clover to make an uninterrupted growth. When the buckwheat is ripe it is cut for seed and the land is left with a good green coat for the winter. Crimson clover seems to do especially well when sown under such conditions.

A more extended use of catch crops for green manure is bound to extend the productive capacity of the farm. This will be inducted through better yields of the grain crops, the possibility of keeping more live stock and of making soil conditions such that it will be easier to grow the standard legumes, Red clover and alfalfa. Of course, the use of green manure crops presupposes liming when these crops are turned under, or at intervals so as to provide against the soil becoming too acid. Within the next month these crops should be seeded and no matter what the rotation may be, if there is a chance to insert between the main crops some catch crops the final result will be highly satisfactory.

An Idea for a Porch

MRS. A. M. SWEET

When we bought our farm the house had no kitchen porch and the one on the front was tumbling down. By re-arranging we could bring both the parlor and kitchen doors so they would open into a clear space made where the two ells met, and it was my idea to make one large porch do service for both.

Now, on our farm there was one field which contained a lot of those beautiful white pebble rocks. By drawing a few loads of sand and adding some cement we made a solid cement floor, after preparing a good foundation; then by using these pebble rocks and turning the pebbles on the outside and cementing it smooth on inside, we built a wall two feet high around our porch, leaving an opening of three feet on one side for the steps. At each side of this opening we made pillars of the rocks, eight feet high, on which to support the roof of porch.

The wall was about nine inches thick and made a good shelf, on which I have two large porch boxes containing geraniums and a vine which creeps over the side and down to the ground. I also trained some of the vines upward, forming a nice screen to keep the morning sun out. The porch is 11x12 feet, and being protected on two sides by the house we have a reading table and easy chairs out there, which make it an ideal place to spend our evenings reading or sewing.

The expense of building was small, but the comfort we derive from our out-door room is beyond description. In winter we enclose this porch

New York.

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.
EDWARD T. WALKER, Managing Editor
THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS
W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE
F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES
J. C. Billingslea, 119-123 W. Madison St., Chicago.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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JULY 15, 1917

Farm Loan Bonds in Demand

DURING the latter part of June the Federal Farm Loan Board offered to the public, through a syndicate of bankers, the first installment of the long anticipated Farm Loan Bonds. These bonds, secured by first mortgages on farms in various sections of the country on which money has been advanced to the farmers for improvements and equipment to increase the efficiency and production of their farms under the Federal Farm Loan Act of last year, bear 4½ per cent. interest and the price at which they were offered to the public was 101½ and accrued interest from May 1st—a fair price for a good bond. It might have been expected that, following immediately on the heels of the big Liberty Loan, these bonds would find a slow market, but on the contrary, the present offering, which we understand is approximately $12,000,000, was oversubscribed within a few days, and it is probable that the full $30,000,000 which it is announced will be issued within a six-month period will be gobbled up eagerly by an investing public which knows a good thing when it sees it. That is how the financial world today regards farm securities!

So much for the first step in providing the American farmer with a helpful financial system; the Federal Farm Loan Act is a success in so far as it goes—the farmer who conforms to its requirements is able to get the money he couldn't get before, at reasonable terms, and the monied public is ready to provide this money on the security specified by the terms of the act. But this is only a starter, and does not by any means create a financial millenium for the agriculturist. What we need now is legislation which will assure the farmer "call" money and short time loans at a reasonable rate—just as the Federal Farm Loan Act secures him reasonable loans on long-time mortgages.

Hats Off to New York

WHEN it comes to what has actually been accomplished by a state with a view to increasing its food supply during these critical times, we must take our hats off to what New York has done. They have done more than pass resolutions and advise. Their first step was to organize a state food supply commission for patriotic agricultural service, composed of the leaders of agricultural thought and action and place under the direction of each, one important division of the work. In this way the burden is divided and best results are obtained.

When the commission met and decided that production could be increased by the use of farm tractors and tillage implements, they showed faith in their belief by the purchase of forty tractors. By the middle of June thirty-one of these had been permanently placed and four temporarily loaned. They were allotted to county farm bureau associations, county home defence committees and responsible farmers' organizations. In every instance the county representative of the commission, in most cases the farm bureau manager, approved the applications and saw that conditions warranted the use of a tractor which remains the property of the state until the local organization has paid for it if it sees fit to do so after December 1st. In the meantime a stated rental covering only the depreciation, must be paid to the commission. No charge is made for capital invested nor any profit sought, and in case the organization does buy the machine the depreciation charge will be allowed on the purchase price. In this same way the commission is now planning to loan a number of traction power potato sprayers and power ditching machines where the local representatives think they will do the most good

Not forgetting the fact that it takes money to produce crops, the commission has in operation a Patriotic Farm Loan Fund which up to June 14 had loaned approximately $200,000 to 2500 farmers, in amounts averaging $100 each. They estimate that this was the means of planting 40,000 acres which would have otherwise not been planted. In order to pay labor to care for this increased acreage a second installment of these loans has been made available.

The labor division of the commission has tried to solve the help problem through the county representatives, and a great many men and women have been placed where most needed. More than 10,000 school boys are now at work on farms of the state and will be given school credit if they serve through the summer.

Financing the Silo

BANKERS are close students and have visions which enable them to see beyond their own doorsteps. Looking at things from a financial angle, they can often see results which minds trained to think along different lines do not catch at first glance. Such a far-seeing man is J. R. Wheeler, president of the Wisconsin Bankers' Association. He has taken a firm stand for more silos in his state, and on a large poster recently issued by the Wisconsin Agricultural Experiment Station, he is quoted as saying: "If you need money this summer to build a silo or for other constructive purposes, do not hesitate to go to your banker and talk it over with him. The members of the Wisconsin Bankers' Association know that a silo is a worth-while investment. They know that it takes money to increase production, and they are willing to meet the farmers half way."

This same spirit of co-operation holds true with most bankers in the East. If you don't believe it, go to yours and tell him your plans for building a silo, what a saving it will mean to you and how you can increase your herd. Unless you are overburdened paying for "dead horses" we venture you will have the silo in time to fill it, because if you start at once there is still time to build one.

Turning Dairy Loss Into Profit

ON another page our contributor, Mr. D. H. Watts, strikes at the heart of the dairy problem when he tells the secret of economic feeding. If there is any other business except dairying which can be conducted for so long a time at an actual loss, yet without bankruptcy, we have yet to hear of it. So long as the bills for purchased feed did not exceed the monthly milk, cream or butter checks it was possible to go on by not counting for labor and home grown feeds. Now, however, things are different. Feed bills far exceed milk checks in some cases and it does not take much accounting to see that it is a losing proposition. That is one reason why we hear of thousands of dairy cows being sent to slaughter. In fact, in Lancaster county (Pa.) alone it has been estimated that since last October over 8000, or about 20 per cent. of its entire cows, have been disposed of. The effect of this decrease will be seen for several years and while it is rather an allopathic dose, in the end it cannot fail to have a good result on the dairy industry.

We all know that some cows will produce more than others and that it is not always the one which gives the most in one month that stands at the top of the sheet in a year's work. The same thing is true of crops grown on the farm for feed. Some will give more in a year than others, but when taken over a term of years do not show the same results. It is the recognition and adaptation of these two facts which make for successful dairying, and the men who have been quietly working and planning along these lines in the past are now reaping their just rewards. Dairying ought to be one of the most profitable branches of farming which it is possible to conduct, and we believe that the next few years will prove this to those who are able and willing to see things as they should be and work and plan accordingly.

More Automobiles—More Good Roads

FIGURES recently received from the office of Public Roads of the U. S. Department of Agriculture tell us that during 1916 there were 3,512,996 motor cars registered in the United States. This includes commercial cars, but not motorcycles, of which there were 250,820 registered. From the owners and drivers of these conveyances the several states collected a gross revenue of $25,865,369.75 and 92 per cent. of this amount, or nearly $24,000,000, was applied directly to construction, improvement and maintenance of the public roads in forty-three states.

The creation of this large sum for road purposes has occurred within only a few years, until it now forms nearly 9 per cent. of the total rural road and bridge revenue of the states. As recent as 1906, only 10 years ago, the total gross revenue collected from the approximately 48,000 cars then in existence, was only $190,000. During this year the state of Pennsylvania alone expects to have $6,000,000 from automobile licenses for use in road work.

In view of the vast amounts being paid for the privilege of riding in automobiles it is only natural that a strong sentiment has developed for better roads. We believe, so long as the money is honestly spent for value received, improved roads reduce the cost per mile of travel, increase traffic and increase land values. Hasn't this been true in your vicinity? Let us all work for more improved roads.

Bulletin Helps for Farmers

Farmers' Bulletin 839, "Home Canning by the One-Period Cold-Pack Method," is of special interest and value to all persons interested in conserving the food supply of the nation. It contains very explicit directions for canning practically all of the common garden vegetables, soft fruits and berries, hard fruits, camp rations, meats and soups. Each step in the canning process by the one-period cold-pack method is carefully outlined, and various types of home-made and commercial canning outfits are described.

"Drying Fruits and Vegetables in the Home, with Receipts for Cooking," is the subject of Farmers' Bulletin No. 841, recently received from Washington. It contains a lot of illustrations of efficient drying apparatus, and the text is presented in such a clear and concise way that anybody can follow the directions.

These two bulletins, which every housewife should have, can be obtained free of charge by asking the Secretary of Agriculture at Washington, D. C., for them.

"Timothy Fertilization and Culture" is the subject of Bulletin 202, just received from the Maryland Agricultural Experiment Station. Any one interested in this crop can obtain a free copy by addressing the station at College Park, Maryland.

"Winter Oats, Barley, Speltz and Emmer," is the subject of another bulletin received from Maryland Experiment Station. It gives data and information regarding these rather uncommon crops, but makes instructive reading for the man who wants to keep up with Eastern agricultural practices. It is Bulletin No. 200, and will be sent free if you ask the experiment station at College Park, Md., to send you a copy.

An exhaustive study of the tillering of winter wheat has just been received from the Delaware Agricultural Experiment Station. It is a 116-page bulletin written by A. E. Grantham and may be obtained free by addressing the station at Newark, Del. Those of our readers who are giving serious attention to the wheat plant in its habits of growth would find a careful reading of this bulletin valuable.

"Maintaining the Nitrogen Supply of the Soil" is the title of Bulletin 305, recently issued by the New Jersey Agricultural Experiment Station. It is an illustrated 16-page bulletin, and gives the results which the station has obtained after a number of years work along this line. A free copy may be had by those interested if they ask the station authorities at New Brunswick, N. J., to send them one.

Pennsylvania State College has recently issued a 30-page bulletin, No. 146, which gives the results of their 35 years work on the 144 fertilizer plats. A request sent to them at State College, Pa., will bring you a copy in return.

Timely Horticultural Hints

The Peach Crop in New Jersey and Delaware

Prof. M. A. Blake, horticulturist of the New Jersey Agricultural Experiment Station, reports that it now seems certain that New Jersey will have the finest crop of peaches that has been produced in several years. The set of fruit is not nearly as heavy as in 1915 when a record-breaking crop occurred. At that time, however, there was no natural thinning of the fruit upon the trees in June, with the result that although the crop was very large, the fruit averaged small because of the excessive load upon the trees. While the set of fruit was almost equally as heavy at the beginning of 1917, there is to be a large natural thinning. This is well under way in the southern part of the state and will not make it necessary for the growers to do much artificial thinning, which is very fortunate, as labor is scarce.

Although spray materials have been higher in price this season and labor difficult to secure, most peach growers have made a special effort to get their fruit well sprayed and cultivated.

Preparedness for Fruit Packing This Year Will Count a Lot When the Rush Starts

The secretary of the Delaware State Board of Agriculture, Wesley Webb, in a letter to us regarding crop conditions in that state, says:

"Peaches promise to be the largest crop for many years and I think probably that this is true of apples and Kieffer pears. While orchards are not all alike in this respect, the majority of them are fairly well set with fruit.

"Wheat will be less than an average crop. While the spring has been cold and backward, and corn was late and some of it had to be re-planted, there is an increased acreage and it will have unusual good cultivation, so if the season is good we may expect a big crop. About the usual quantity of white potatoes have been planted. There will be about a twenty per cent. increase in the acreage of tomatoes.

Renovating Strawberry Beds

Strawberry growers often carry their strawberry beds over to the second, and sometimes the third season. Although this is a profitable practice if the plants are vigorous and healthy, and the ground comparatively free from weeds, in many instances it would pay to set new beds each year. The berries of an old bed ripen somewhat earlier, but average slightly smaller than those on new beds. If a bed is to be retained for another crop, the Department of Horticulture of the New Jersey Agricultural Experiment Station recommends that the renovation process should be started directly after the crop is harvested. The following method is found very satisfactory unless the summer and early fall is very dry:

First, mow and rake off any weeds or grass that may be present, being very careful not to cut off too many of the strawberry leaves. Starting on one side of the matted row of plants plow several furrows in such a manner that the original parent plants in the center of the row are turned under, leaving on the opposite side of the row a mat of young plants about a foot wide. Follow this by plowing in the opposite direction up to the edge of the next matted row. Work down the ridge left in the center with an extension disk, stub cutter or cultivator. Then cross harrow the entire field with a spike-tooth harrow, having the teeth set well back. Cultivate the space between the rows frequently throughout the season to keep down the weeds and conserve moisture. Nitrate of soda, applied when the bed is renovated at the rate of 200 pounds to the acre, will induce rapid growth of new plants.

Spray for Grape-Berry Moths

Two applications of a spray made of arsenate of lead, preferably in Bordeaux mixture for the treatment of fungous diseases, will control the grape-berry moth, one of the most baffling pests to growers in the Erie-Chautauqua and northern Ohio grape belts. Make the first spray immediately after the grape blossoms have fallen and the second when the berries are just touching one another—about two weeks later. Of all the measures tried, spraying, according to entomologists of the United States Department of Agriculture, is the one dependable method of controlling this pest in commercial vineyards.

This is the way to make the combination spray: Arsenate of lead, paste, 3 pounds, or powder 1½ pounds; resin fish-oil soap, 1 pound. Bordeaux mixture: Copper sulphate, 3 pounds; lime, 3 pounds; water, 50 gallons.

In case of extremely heavy infestation, the amount of arsenate of lead should be increased to 5 pounds, if paste, or 2½ pounds if powder, at least in the last application. If a resin fish-oil soap is not available, a laundry soap containing resin may be substituted in its place.

Grain Bin Sanitation

Every year large quantities of stored grain are destroyed or rendered unfit for human food by some of the forty or more insects which are commonly known as weevils.

Much of this damage can be prevented by proper storage conditions, cleaning the bins, thoroughly fumigating them or spraying them with 10 per cent. kerosene emulsion, is the timely advice of the Pennsylvania Department of Agriculture. Destroy any weevil that might be present and be the cause of an infestation of the newly stored crop. Grain bins for storage should be well built and separate from the barn so they can be treated if the grain becomes infested, and farther, grain is not as liable to become infested with weevils when stored in a separate building. Inspect the grain every week or two and if the weevils are present, remove the grain, passing it out through a cleaner, if possible.

Weevils do not thrive in stored grain if it is moved and aerated.

Preventing future trouble by thoroughly cleaning the empty bins and destroying possible weevil infestation by spraying with a 10 per cent. kerosene emulsion is as important as treating the grain after it becomes infested.

Stop the waste of stored grain through the lack of care and proper storage.

The prevention of one-half of the loss of 1 per cent. of 24,000,000 bushels of wheat and 54,000 bushels of corn rendered unfit for food each year after it is stored, is worth while considering. The average loss of stored grain on the farm is 1 per cent. If the producers of Pennsylvania will practice clean methods and endeavor to lower the average loss one-half, it will mean a yearly saving of nearly three-quarters of a million dollars on wheat and corn alone.

Inoculation Essential for Legumes

For centuries legumes have been used in crop rotations because they enrich the soil. Why alfalfa, the clovers and other similar crops make the soil richer was discovered about thirty years ago, when it was shown that legumes can use the nitrogen of the atmosphere while other plants must take it from the soil. By plowing under a leguminous crop, soil fertility may be increased by that nitrogen taken from the air.

The leguminous plant, however, can get its nitrogen from the air only through bacteria, living on its roots. Certain bacteria in the soil enter the small roots and cause them to swell into wart-like growths or nodules. Inside of these nodules millions of the legume bacteria grow and these are the agents that take the nitrogen from the air and give it to the plants. Without bacteria the legume plant will not use nitrogen from the air, but from the soil the same as any other crop.

To use atmospheric nitrogen as fertilizer one must make certain that the proper bacteria are present in the soil. This can be done by inoculating, which consists in applying the bacteria to the seed or scattering them on the field. The bacteria can be had in soil where a legume grew recently and produced nodules, or in pure cultures grown in special laboratories. The use of the soil is as effective as the pure culture, according to W. A. Albrecht of the University of Missouri College of Agriculture, but often a properly inoculated soil cannot be had.

It is estimated that during the past year 627,350 fleeces were clipped by sheep raisers in Pennsylvania, which is just a slight fraction of a per cent. below last year.

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The Gospel of Co-operation

M. G. FEINT

How many realize that the best alfalfa in the world is grown in Onondaga Co., New York? The recent Panama-Pacific gold medal award for alfalfa was given to a member of the Onondaga County Alfalfa Growers' Association. Alfalfa from Argentina and the Western United States does not compare in the percentage of oils, starches and sugars with the Onondaga product, which cannot be duplicated. Its richness is due to the soil.

Three years ago the only way the farmers who grew this quality alfalfa had to dispose of their crop was through the middlemen or dealers. The latter agreed upon prices, then said to the farmers: "This is what we will pay. Take it or leave it."

The farmers took what they could get, as there was no other way out. Then came John McLennan, Ph. M., author of the book "Practical Farming," former superintendent of the Alfred School of Agriculture, and an enthusiastic member of Fayetteville Grange. Mr. McLennan was tired of receiving a fraction of what his product was worth. So he put it up to the Grange, the only organization in that section. "Men," said he, "why must we stand for this robbery? I know a way out. Put your hay in my hands—do not sell to any one until I give the word. We will try co-operative selling and see what the results will be." Onondaga county farmers knew John McLennan and they took him at his word.

The Grange as a whole had 1000 tons of alfalfa, which they placed at his command. He advertised in the Eastern papers that Fayetteville Grange would sell hay direct to consumers. The results were startling. In 60 days the 1000 tons were sold at an advance of $3.60 a ton over what the dealers would offer, making the growers a saving of $3600 by co-operative selling. Furthermore, the consumers got the hay for less than the dealers would have asked for it.

At this time there was no business organization other than the Grange. Mr. McLennan interested E. P. Boyle, of Onondaga, E. K. Munro, of Camillus, Edwin Nottingham, of Dewitt, and John W. Gates, of Chittenango, and an organization was effected, with a membership of 50 farmers. Within a year the membership reached 170, and a saving of $15,000 over dealers' prices had been made. It is expected that in 1917 the saving will amount to between $30,000 and $50,000 above what the members could have realized for their hay had there been no organization.

There are many other benefits connected with the organization, as well. The purchasing of seeds, fertilizers, implements and feed is also done co-operatively, at a saving to the members of 10 to 25 per cent. Only thoroughly tested seeds are bought. The association co-operates with the Onondaga County Farm Bureau in every way possible, and gives advice and assistance to farmers on matters other than those pertaining to alfalfa growing, such as the marketing of other products.

The membership has now grown to 450, and includes growers in several counties. The amount of hay shipped by the association in 1917 would make a train ten miles long. The hay is carefully graded and a high standard of business practice is maintained by the association. This organization is a pioneer in co-operative buying and selling and is well worthy of study and imitation by other localities that produce any special line of products which are now at the mercy of the dealers' methods.

New York.

Opening up Springs by Blasting

CHARLES F. HIGGS.

A good spring in a field where cattle are pastured is a valuable possession for any farmer. For some reason or other after timber has been cut off a tract of land, the springs and small streams running through it have a tendency to dry up. In this locality many farmers appreciating the value of a watering place for their cattle, are drilling wells, building cisterns and otherwise endeavoring to get a store of water for use in the dry seasons of the year. Oftentimes a very small spring will be found in a field which yields insufficient water for the needs of the stock. If the owner understands the use of dynamite he can frequently enlarge such a spring so that it will produce all necessary water.

A neighbor of mine had a small spring of this kind near his barn. The water came up through a crevice in a rock ledge. The stream was so small that it was hardly possible to dip up a cupful at a time. It was fine, pure water and he was very desirous of increasing its flow. One day he asked me to try some dynamite on it to see if I could enlarge the opening and get more water. With a hand rock drill 5 feet long and 2½ inches in diameter, we worked down a bore hole in the rock where the water emerged. This hole was put down the entire length of the drill. In the bottom we enlarged it, making it about 6 inches in diameter. This little cavity was sufficient to hold 4 sticks (that is about 2 pounds of dynamite). This charge was fired with an ordinary cap and fuse. The blast greatly enlarged the hole in the rock. Shortly afterwards we had a stream of water running from the opening that would have filled a 12-inch pipe. After that he had enough water from this spring to supply the stock of several farms.

Since this experiment a dozen or more neighboring farmers have tried the same thing with equally good results. The cost of this work, including explosives and labor, was less than $3.

Of course, I do not claim that dynamite will produce water where it does not exist. Some people come to me and ask whether by placing a shot in a well or in a spring an increased flow of water can be obtained. I always tell them that depends upon whether there is any water in veins in the rock that would be opened up by the blasting. In other words, blasting does not produce water—it merely opens up the veins and permits it to escape if it is there.

Virginia.

Care in Oiling Tractor is Time Well Spent

More tractors are being used this year on Eastern farms than at any previous period, according to reliable information. Many of these machines which are intended to conserve the labor supply and "speed the plow" generally, are now operated by amateur mechanics.

Proper lubrication of the farm tractor, machinists state, will save many a costly and annoying repair bill—to say nothing of the delay. Here are just a few timely notes on tractor lubrication, suggested by E. C. Sauve, of the Wisconsin College of Agriculture.

"Make a thorough study of the lubrication system used on your tractor. If possible, remove the plate or plates accessible to the crank case and trace the flow of oil.

"In all tractors where the splash or pump systems are used, either alone or in combination, there is an indicator which should be watched closely. Keep the oil to the proper gauge height.

"If possible, operate the pump by hand to make sure the system is working right.

"Before starting on a day's run, examine the oil system. See that all grease cups are filled and tightened.

"Operate the engine for a few minutes. Then stop and examine all bearings, if possible, to make sure they are being well lubricated.

"Change the oil in the crank case as often as recommended by the manufacturer. When burning kerosene as fuel, the lubricating oil will thin out, and in time lose its value. If a heavy grade of gas engine oil is advocated, use no other.

"Too much attention cannot be given to tractor lubrication. Spend a little time each day in this work and the life of the machine will be materially increased."

A New President of Maryland State College of Agriculture

Dr. A. F. Woods, former Dean of the Agricultural School, University of Minnesota, assumed office on July 2nd as President of the Maryland State College of Agriculture. He will be executive officer of the State Board of Agriculture, which controls all the official agricultural interests of the state, including education, extension, investigation and inspection. He succeeds Dr. H. J. Patterson, who, at his own request, has resumed his duties as director of the experiment station. Dr. R. C. Reed, formerly of Cornell, after service of several years in Delaware, has been given charge of the live stock sanitary and dairy inspection work and will also be dean of the animal husbandry course of the college.

What We Are Asked

Seeding to Grass.—W. G. A., Tennessee, writes: "I have some meadows which contain wild grass and I want to seed them down to tame grass and want your advice as to depth of plowing and time of seeding and the varieties of seed best adapted for this purpose."

Plow the land at a moderate depth but see that it is turned well so that all the old grass is hidden. Plow early as convenient. Keep the land worked down by careful harrowings until the middle of August, the time to seed. Use a mixture of timothy, orchard grass, red top, Red clover and Alsike clover. It would be a good plan to include some blue grass if the land is of a clay loam nature. For a good stand it will be necessary to use 20 to 25 pounds of the mixture per acre. One may vary the proportions of the seed to suit conditions. A. E. G.

Treating Seed Potatoes.—A. C. B., Kentucky, writes: "Please advise me how to treat new Irish potatoes to be used for seed, also what varieties can be used. I have Irish Cobbler and several other varieties."

If you have the Early Rose, Early Ohio or Bliss Triumph mature now you can make a second crop with these but not with the Irish Cobbler, for that variety will not sprout early. Cut the potatoes in halves and spread on the ground and cover with pine straw or any straw, and plant as they show signs of sprouting. Do not plant any that do not sprout by the 20th of July. W. F. M.

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Giving Poultry a Chance to Pay

J. RAYMOND KESSLER

In discussing the fattening of poultry few authorities lay much stress upon whether the stock to be fattened is of known breeding or simply mongrels. The impression left in most cases is that fattening is chiefly a matter of feeding methods, mongrel poultry being as easy to fatten as stock of certain breeding.

Having for the past number of years conducted a large commercial poultry farm on which nothing but certain breeds were raised, and also operated a market route through the surrounding district for the purchase of poultry, I can speak from actually seeing both mongrels and stock of known breeding go through the fattening process together. In truth, there is the greatest difference. We have found a very large percentage of mongrels that would never fatten under any condition. They were naturally scrawny, bony birds and could never be anything else because they hadn't the breeding behind them.

The difference in results in fattening mongrels and fowls of a given breed is about the same as the difference in results between fattening a blooded hog and a razor-back—the one makes 100 per cent. use of the feed, while the other only makes a 50 per cent. use of the available nutrition. It isn't the fault of the animal, it's the fault of the breeding.

Modern methods of fattening will accomplish very little if the inherited ability to make use of the feed is missing. This fact is recognized by most producers of beef cattle and pork, and it is time the majority of poultrymen and farmers came to a realization of this truth with regard to fowls.

OATS AS A FEED.

Frequently poultry raisers make the statement that their fowls, especially the young growing stock, will not eat oats, and when fed with other grains they leave it on the ground. The trouble is usually the poultryman's fault, for if his fowls refuse oats there is evidence that they had not been properly fed when young, or else the oats that is being used is in reality nothing but hulls.

Oats is one of the best feeds that can be allowed fowls, and should make up at least 20 per cent. of the daily ration of both young and old birds. It is an exceptionally good food for young growing chicks and will be found an excellent promoter of growth. Of course, whole oats with the shells on should never be allowed young chicks until they have reached the pound size, as there is danger of the hulls causing serious congestion in very young chicks.

However, some form of oats should be made a part of the chicks' ration from the very beginning. Rolled oats mixed with hard boiled eggs, for instance, is on many farms the first food allowed the young chicks; then in the chick feed pin head oats can be used. As the chicks increase in size and a larger grain feed is used, hulled oats can be fed until the chicks are large enough to eat oats with the hulls on. The best way to introduce whole oats to the young chicks is to feed it soaked for the first two weeks. Soak the oats over night in warm water and feed the next day. After about two weeks dry oats may be introduced and there will usually be little trouble found in inducing the chicks to eat it. Flocks of young chicks that are allowed sprouted oats after they are a few weeks old are usually more easily induced to eat dry oats.

Chaffy, thin kernel oats is not desirable for poultry, because there is too much waste. Frequently the oats left on the ground will be found to be nothing but hulls when examined. Clipped Western oats is the best and far the cheapest in the long run.

Ground oats makes a good addition to any mash mixture and can be added in quantities of from 10 to 15 per cent. to advantage. For very young chicks the hulls should be sifted out, but for stock over the one-pound size the hulls can be left in without the least danger of causing trouble. Ground oats with the hulls left in makes bulk in the mash mixture and keeps the mass from packing in the crop of the bird.

CHAFF AS LITTER.

Chaff is a very good litter for the floors of colony coops where the chicks only sit on it at night, or if the roosts are used in the coops, for under them. It is an excellent absorbent of manure and prevents the same from sticking to the floors of the houses. However, it should never be used where the fowls are forced to scratch in the litter for their grain, as it will cause sore eyes. It being light and fluffy, is kicked into the eyes of the birds by their scratching. This is especially true of small chicks.

GRADING EGGS.

Making the grading of eggs worth while depends to a very great extent upon one's market. That is, if all the products are marketed in rural districts and small towns it is doubtful if grading will gain the producer anything in a financial way, though it will gain for him a greater demand for his products. This is because in the country districts an egg is simply an egg, and while quality is appreciated it is rarely that the purchaser cares to pay an extra price for the finer product. However, in our larger towns and cities where the greater portion of eggs are marketed, the grading of eggs is decidedly worth while from the standpoint of better returns to the producer.

The grading of eggs brings to most persons' minds simply the question of color, but in truth there are three ways to grade eggs—color, size and freshness.

In grading for color the eggs should be separated into three distinct lots, the absolutely white shell eggs, the brown ones and then the speckled and off color eggs. The grower will come more nearly having a uniform color of eggs if he will adopt one breed of fowls instead of the usual mongrel flock. For instance, from the Leghorn we have the white shell egg, from the Rocks the brown, and from the Wyandotte the speckled egg. The matter of which is best depends entirely upon the color favored by the particular market supplied. Many large markets are inclined to favor the white egg and still others consider the brown shell egg the best. Nevertheless, whether white, brown or speckled, the price will always be better if all the eggs in a container are of a uniform color. If an entire container of one color cannot be had it will pay the producer better to use smaller containers and have each one contain a uniform color of eggs.

The next step in grading is size, which is fully as important as color. Nothing will detract more from the price of a crate of eggs than to have one or two small eggs in a layer. Two dozen undersize eggs distributed through a standard crate of 30 dozen will often lower the price as much as five cents a dozen wholesale. While eggs of large size will bring more than small ones, the important thing is to have all the eggs of a uniform size.

After color and weight comes the most important of all—freshness, for if the eggs are stale, then grading for color and size will be only wasted labor. A really fresh egg should not be over one week old when it reaches the dealer and the egg of the day is the 24-hour egg. The demand for the 24-hour egg has, more than any other thing, given the producer a chance to make a premium on his products at the cost of nothing but carefulness.

All in all, carefulness is really the keynote to obtaining an increase of from five to ten cents per dozen for one's eggs, since grading will cost the poultryman nothing but that.

Pennsylvania.

Pasturage and Shade for the Growing Chicks

During the summer months, especially July and August, the chick ranges are very apt to dry out on account of lack of moisture and hence the available supply of succulent green food may become limited. It is strongly urged by the poultry department of the New Jersey Agricultural Experiment Station that the poultrymen look carefully to the maintenance and supply of green food during these months. This supply can be furnished in two ways. First, the yard may be cultivated at frequent intervals and some quick growing summer crop sown, such as buckwheat, millet, soy beans, etc. Or, where it is undesirable to do this, sprouted oats, mangel beets or some forage crop, such as clover or alfalfa which is grown outside the yards should be harvested and fed to the birds. This green food keeps the birds in an active, healthy growing condition and also enables them to regulate the body temperature. The growing of this food in the yard keeps the yards sweet and clean. Do not forget the chicks during the next two months by allowing them to run on dry, bare yards without any greens.

The ideal place to put the colony houses and the growing stock is in an orchard along a hedge-row or along the edge of a woods where the young chickens can have access to an abundance of natural vegetation. Where this natural shade is not provided it is often desirable to construct artificial shelters of crotched sticks over which brush is laid. Another method which is quite commonly practiced is to build frames about two feet above the ground, covering them with muslin or burlap. During July and August if the youngsters are not provided with shade they will become stunted in growth, will feather slowly, and will not make the rugged, hardy birds one may expect if the shade is provided for them. Look carefully to the growing chickens during the next two months and see that they have an abundance of shade available throughout the day.

Chicken Lice and Mites

Poultry raisers must distinguish between lice and mites attacking their fowls, suggests J. G. Sanders, zoologist of Pennsylvania Department of Agriculture. Control methods for lice do not affect the mites, and vice versa.

Mites attack chickens on roosts at night, then crawl into cracks and crevices during the day. Thorough spraying of poultry houses, roosts and nesting boxes with kerosene is most effective. Follow with whitewash and lime-sulphur application.

Chicken lice, different from mites, suck the blood from the chickens and often harm young chickens seriously. A tiny bit of blue ointment mixed with equal parts of lard, should be applied to the chicken on the back of the head and near the vent.

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Filling the Silo

OUR EXPERIENCE POOL

We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1224, AUG. 1.—What farm equipment do you use for preparing the ground and planting wheat? Do you disk ground before plowing? How deep do you plow and do you roll after planting? Tell us some things which will increase next year's crop other than better seed and fertilizers.

TOPIC No. 1225, AUG. 15.—Which have you found the best way to get a field in grass, sowing it alone or with winter grain? What kind of seed do you use, how much per acre, when and how do you sow it? When and how do you fertilize your hay crop?

TOPIC No. 1226, SEPT. 1.—Winter storage of root crops. Tell us in not more than 250 words how you save and protect vegetables for later use. You can tell how you save beets, pumpkins, etc., for the live stock, or turnips, potatoes, etc., for home consumption or the market.

W. H. R., Palm, Pa.—One of my neighbors and I fill silos together, as it would be almost impossible to get extra help and horses for each to fill alone. We both have our own outfits, however, as we make use of both the cutter and power for so many other things. We require six men—one to drive the harvester, one to help load, one driver to each of the two teams, one to feed the cutter and one in the silo. We use three horses in the harvester and three to each wagon, all hitched abreast.

Low-down wagons with 26-inch wheels in front and 32-inch in the rear, are used; 25-foot poles are laid lengthwise across the bolsters instead of a solid floor. This makes it easy to put the corn on and about twice as much as an ordinary load can thus be taken, thereby saving an extra team and driver. A distributor is used in the silo, making it easier for the man doing the tramping, and also producing better ensilage, because it will be more thoroughly mixed. The harvester saves one man and makes the corn easier to load and unload.

L. H. H., Weedsport, N. Y.—We have tried different ways to fill the silo and find an individual rig the best for our purpose. Have tried hiring a large cutter and changing with neighbors for help, but found it too expensive and very uncertain, as the corn is about all ready at one time and some is sure to get frosted or overripe before we can get around to cut it.

I start the harvester in the morning and cut until noon, planning to have three or four men and draw with two teams until we have all the corn in the silo that is cut. Then repeat the operation. I have one man to hand off the wagon, one to feed cutter and two in the silo to tread it well. I use a 6 H. P. gasoline engine which requires no attention after it is started. I think it a good idea to have the feeder snap out two or three ears from each bundle where the corn is eared heavily I throw them to the hogs and let them husk it themselves. Corn should not be allowed to lay more than one day after being cut, as it dries out and will not make the best ensilage.

E. B. M., Corsica, Pa.—The plan we find best in filling our silos is to have our own engine and cutter. We have a 4 H. P. gasoline engine and a No. 10 cutter with drag stacker. We plant about four different kinds of corn from the earliest varieties we can get to the big late variety. This gives us corn to cut into silos for a month, or at least three weeks, thus giving silage time to heat and settle, and therefore we can get a great deal more in. We have two stave silos 8x20 feet. We have a hired man or boy through the summer and on days we want to fill silo we hire another man or boy, and the three of us go at it. We usually take our team and low wagon with flat rig on, 6x16 feet, to the field and the three of us cut one row apiece and lay it on wagon When loaded we drive to silo, start our engine, one man on wagon, one in silo and one to feed cutter; everything going well we soon unload and are out again.

This is much more economical than to have three or four teams, 12 or 14 men and other things in proportion to fill silos. Besides, we get in 25 to 27 tons in our 20-ton capacity silos.

E. E. B., Pomfret Centre, Conn.—We hire a traveling blower outfit, not to save cost of outfit, as we have a good 8 H. P. gasoline engine idle when work is going on, but because our local conditions are such that we can get the extra labor easier in connection with the traveling outfit. Our county jail is only five miles away and there are usually from 60 to 100 inmates—mostly drunks from our numerous manufacturing villages. For a good many years those convicts have been worked out at all sorts of labor. They are sent out in a double team with a boss, and we pay for transportation, etc. In past years all expenses foot up about $1.50 total per day for each man's labor, and it is the most satisfactory help for the purpose we can get. For extra teams we co-operate with our neighbors. In past years the custom has grown up for this jail gang to follow the traveling blower outfit around this section. They are hired separately, but work together in good team-work style.

We have a distributor tube in the silo, which keeps the corn well mixed, as well as distributed. Without this the tendency is for the heavier parts, including the pieces of the ears, to be thrown to the farther side of the silo, while lighter parts drop nearer. Also, the distributor avoids having pieces of ears, etc., from thumping you on the head when tramping, which gets monotonous. We place men about as follows: Two men in silo tramping and leveling, two men at cutter putting up corn, one man, the owner of the outfit, feeds cutter, four to six men cut the corn in field by hand, three to four men load, three men drivers of double team dump carts draw and load. I put in my time first in one place and then in another wherever there seems to be a weak link in the chain temporarily. This makes 16 to 18 men in all. It is the custom for us to furnish teams to move the outfit to the next farm.

J. E. F., Wellsboro, Pa.—Filling the silo is one of the most important jobs the up-to-date farmer has to contend with, and he should get all the information possible, so as to be able to do this work correctly, as there is a vast difference in how the silage is put up so as to get the best results.

We aim to start the corn binder at least two days before we commence filling, so as to be sure to have the corn cut as wanted. We use from two to four teams, depending on how far the corn has to be hauled. We never change teams from one wagon to another, as this takes up too much valuable time; we have found it much cheaper to have an extra team. We use low-down wagons, and have the teamsters help to load. We own our machine and co-operate with neighbors and generally use ten to twelve men. When we use three teams we keep two men in the field to help load, teamster and one man on the wagon to pitch to the cutter, one man to cut bands and take out the strings, and one man in the silo. We use a steam engine, requiring one man to fire, while I feed and operate the cutter. Handling work this way takes ten men. We aim to keep the knives sharp, and cut the silage ¼ inch. Of course, it takes more time to fill the silo when the silage is cut short, but it makes much better silage, and the same silo will hold from one-fourth to one-third more corn than when it is cut ⅝ to ¾ in long, although many farmers don't realize the difference. When silage is cut fine it is more palatable, easier digested and will keep betttter, so it pays to keep the knives sharp and adjust the machine to cut not over ¼ inch.

The wood stave silo is one part of the farm building equipment which must have attention at just the proper time.

To keep the walls of a stave silo from collapsing a wood hoop nailed at the top of the inside walls is recommended. This hoop may be made of three or more thicknesses of ½-inch by 4-inch elm or white oak lumber.

The inside walls of the silo should be treated with a coat of linseed oil or creosote every year or two as needed. This renders the wood more durable. A coat of paint on the outside of the silo every two or three years not only protects the staves from decay, but improves the appearance.

Which Spreader Will You Buy?

THE popular call today is for a low down wide spread machine. Farmers who have had experience are all turning to the wide spread. Ask any of your neighbors who is using a Low Cloverleaf, Low Corn King or Low 20th Century spreader why he bought it. Does he find it more economical? Does it do better work? Are his crops heavier where he uses it? What is there about it that makes it worth having?

A Low Cloverleaf, Low Corn King or Low 20th Century spreader is worth more than any other kind. Spreaders like these cost less in the long run than any cheaper machine because they increase both crop yields and land values.

If you had rather read about the good features of these spreaders than ask your neighbors about them, drop us a line and we will send you complete information and tell you where you can see the spreaders.

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The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

AUGUST 1.—Tell us three unusual ways you use cucumbers, squash, carrots or okra in cooking for your family. What ways do you prepare them, either alone or in combination? Tell us three ways for one vegetable or a different way for three vegetables.

AUGUST 15.—Have you made any changes in your family baking since wheat flour has advanced in price? Have you had any success using rye or graham flour? How do you make your best bread?

SEPTEMBER 1.—How do you make coffee? What variety of coffee do you buy, what price do you find it necessary to pay for satisfactory coffee and what suggestions can you give our readers who are dissatisfied with their cup of coffee, to improve upon it?

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

"Women's Work" for the Fair

Mrs. D. L. T., Fine Creek Mills, Va.—There is a peculiar fascination about preparing an exhibit for a fair, and if one has succeeded once in winning blue ribbons there is always a desire to do so again. I have often exhibited articles at our county fair, and once at our state fair, and each time there has been a liberal sprinkling of "blue" among my ribbons. Not being especially gifted in one particular line of work, I exhibit the best of everything I have in canned fruits, vegetables and plain sewing.

In canning I select the most perfect fruit or vegetables I have, and I am careful to pack them into the jars in the way they will look most attractive. I use clear glass jars with glass tops. It is always well to read carefully the fair catalogue and decide just what you will enter for exhibition; always enter as many exhibits in any class as you can, so as to stand a better chance of winning. Besides canned products and plain sewing there are premiums offered on fancy work and various farm products, which can be selected as the different crops mature. A few years ago I intended to exhibit a sunflower, but at the last moment something happened to the one selected, so to fill out the exhibit I found one larger, though not as symmetrical, for it was bent somewhat like a woman's bonnet. In a spirit of fun I pinned a big blue ribbon bow on it and wrote, "Put on your old gray bonnet with the blue ribbon on it." The next day I was delighted to see the real "blue" ribbon on it. Later in passing through the crowd I heard some one, evidently an exhibitor of sunflowers also, say, "It was the ribbon bow that won it," and I said, "That was just it."

Mrs. J. C. H., Fishersville, Va.—I make an exhibit every year at our county fair, of canned fruit, tomatoes, jelly and preserves, and have never failed to win my share of premiums. I use clear glass quart jars, also half-pint clear jelly glasses with tin tops. Any other kind is set aside and not judged at all, at most fairs.

I do not include fancy work, sewing, or any of the culinary arts in my exhibit. I leave that for those who have more time. I am watching out all summer for the very best to take to the fair. I have everything as nearly perfect and as clean as possible. I always help my husband get up his orchard exhibit for both state and county fairs. Our county calls for by-products in this exhibit, and that part of it is "women's work," as are also decorations and artistic arrangement. We select fruit of an even size, perfect color, free from blemishes, clean and polish until they shine, being careful not to remove the stem. He wins first every year.

Then I take a look over my garden and see what I have that will be ready at the proper time, and make an entry of it. I generally have cabbage, sweet corn, pop corn, pumpkins, tomatoes and peppers. I enjoy having a nice little exhibit.

[Some judges sharply score fruit which has had its natural luster removed by polishing.—Ed.]

Mrs. S. M. J., Kentwood, La.—In putting up fruit for exhibition the secret of success is, not only having everything very nice, but very nice looking, also. For this purpose I use the wide-mouthed, clear jars. They cost more than the Mason, but the contents show to a better advantage. The quart size is best for fruits, vegetables and berries, while the pint size is nice for jams, jellies and preserves. I select the choicest fruit and fill the jars while raw, cover with light syrup and cook in the jar. If contents shrink in cooking I open and fill with hot syrup before sealing. When jars are cool I wrap each one in dark paper and keep in a cool place until ready for the fair, then I put on neat printed labels, which improve the appearance wonderfully. I select tomatoes that will fit in jars whole, choicest peaches, and cut in halves; pears and apples I quarter; plums are pricked with a fork to keep skins from bursting, then canned whole. Small, thick bunches of grapes are selected to pickle on the stems.

My chrysanthemums seldom fail to take blue ribbons. Early in the season I pot a few choice slips, keep well watered and pruned into shapely plants. By fair-time they will be in bloom. If they are rather slow to bloom I place them on the south side of the house; if fast, on the north side. This will hasten or retard blooming for two weeks. I spend my spare time making baskets of reeds and raffia, also fancywork of different kinds. I lay aside the choicest of these for my exhibit. Indian baskets filled with fruit, or potted plants, always attract, and there is not so much competition along this line.

Mrs. M. B., Blanchard, Pa.—I believe that every woman who possibly can do so, should make an effort to exhibit something at a county or state fair. Even if she never gets a prize it is distinctly worth while. You certainly take more interest in the fair if you are an active participant, and you help to make the fair worth while for other people. A good fair brings recreation and change to the farmer and his wife, but if every man or woman should say, "Oh, I won't bother exhibiting anything this year," the fair would be a rather poor place to go for entertainment, wouldn't it?

Fancy work is my best line for fairs, but I take it that the Women's Exchange wants us to tell about food products, such as jellies, canned fruit and vegetables. For jellies, the ordinary jelly glass, clear and sparkling, the jelly without any paraffine on top, is what I use. For canned fruits, I use the wide-mouthed jars made of white, rather than green or blue glass, as this shows the color of the fruit to best advantage. For exhibiting I can the largest, finest specimens of fruit, place carefully in the jars, and give special attention to cooking so that it does not become overdone.

For labeling both jelly and fruit I type the name on short lengths of white passepartout picture binding. This is already gummed and looks neater than any other label I can make. To give an especially attractive appearance, set your glass or jar on a lace paper doily, and if it is possible lay alongside of it a perfect specimen of the fruit, of which the canned or jellied product is made, for a garnish. "Fine feathers do not make fine birds," but I have found, nevertheless, that appearances count for much everywhere, and nowhere more than at a fair exhibit.

Mrs. A. E. R., Wilmington, Del.—In our experience exhibiting at fairs we have found that attractiveness seems to count as much as anything in the eyes of the judges. For this reason we always take particular care to arrange our exhibit so that it will show to the best advantage. We have found crepe paper a great aid in this work, and generally use dark green to cover the table or space allotted us.

Our experience with bread has been that the judges seem to like a medium or small loaf rather than a lare one, which is also apt not to be well done.

Fruit Juices for Jelly Making

Fruit juices for use later in jelly making can be sterilized and bottled without sugar and made into jellies at the housewife's convenience. This enables her to do with fewer jelly glasses and to distribute her purchases of sugar for jelly making through the year. Moreover, with the bottled juice she can make a greater variety of jellies, as juice which will not jell can be put up when the fruit is ripe and combined later with fruits that will jell, or fruits ripening at different seasons can be combined. For example, the juice of strawberries, cherries, or pineapple can be kept without sugar and later when apples are plentiful can be made into combination jelly.

From the unsugared sterilized juices of currants, apples, crab apples and grapes, kept from 9 to 18 months, the Bureau of Chemistry, United States Department of Agriculture, recently made jellies of excellent texture, flavor and color.

To put up unsugared fruit juices for jelly making, proceed exactly as if jelly were to be made at the time. Cook the fruits until they are soft and strain out the juice through a flannel bag. Heat and pour while hot into bottles previously scalded. Fill the bottles full, leaving no air space between juice and cork or seal. Place the filled sealed bottles on their sides in water near the boiling point, and keep them in the bath for about 30 minutes. Make sure that the corked or sealed end is under the hot water. As soon as the bottles are cool, cover the cork with a paraffine seal. Thorough sterilization and sealing are absolutely essential to success.

To make jelly from the sterilized juice, test its jelling quality, add the proper amount of sugar, and proceed as in making jelly from freshly expressed juice.

Advancing with the Times

HOMER G. WEBSTER.

I am one of the old readers of The Practical Farmer. For twenty-five years I was a tenant farmer and twenty years ago was a close student of your paper. What a change there has been since then in prices and methods of work on the farm. I have seen the day when wheat sold at 55 cents per bushel and now at its present high price. I have traveled a hard road, but finally got there. I recently installed an electric lighting system in my bungalow and now we do not know how we could get along without it. So far we have used the power only for lighting, but the system is guaranteed to run a ½ H. P. motor, electric fan, electric iron, etc. At present I have 27 50-watt lights connected with it, but I intend to get lights of a lower wattage. I think that 15, 20 and 25-watt lights would be more convenient and not so bright when a dim light is needed. They would take less current and a chandelier would look nicer with two or three lights burning to produce the same amount of light which we now get from one.

Our electric light system requires a very little bit of care and at present my light is costing me 49 cents a week, divided as follows: 13 cents for gasoline and 36 cents interest on the cost of the plant at 6 per cent. Thus you will see, without reckoning the interest on the cost of the plant, my light costs me only about 2 cents a day. If I was fixed so that I could use water power this cost would be a great deal cheaper.

We think that electric light is the safest kind to use in and around the barn and other buildings. When I stop to think about it I often wonder how many barns will be saved from burning down by the use of an independent 32-volt lighting system. I believe that electricity will eventually take the place of all other heating and lighting systems and power supply on the farm. One of the modern uses for a plant such as I have is charging automobile batteries, and with the general introduction of automobiles and motor trucks this is no small item.—*Pennsylvania.*

Salting Vegetables for Winter Use

The housewife whose canning operations are limited by shortage of time, containers or equipment, can preserve many vegetables against winter's return by putting them down in salt, according to the New York State College of Agriculture, which tells how to do it.

String and wax beans, dandelion greens, and Swiss chard are some of the vegetables which can be packed away in layers of salt—one part salt to ten parts vegetables by weight—in stone jars. The vegetables make their own brine and are easily stored away. When required for use they should be soaked in water before cooking, to freshen them.

BEAN KRAUT.—Take 10 pounds of string beans, well matured, 1 pound of salt and a small bunch of summer savory. Wash the beans well, remove the strings, cut the pods diagonally across, and throw them into cold water. Lift the beans from the water and without draining them pack them in stone jars with alternate layers of salt. Sprinkle each layer with summer savory. The salt may be slightly moistened before it is added. Unless sufficient brine is developed to cover the beans within thirty-six hours, add weak salt water to the pickle. Weight the beans by covering them with a cloth and a large inverted plate on which is placed a clean, heavy stone. The beans must be watched so that the cloth may be removed and washed whenever necessary.

To cook the beans, lift them from the brine, rinse them off, cover them well with boiling water, and boil them for at least five hours, or boil them 30 minutes and cook them over night in the fireless cooker. If one-fourth of a pound of lean salt pork is cooked with a quart of the beans an excellent meat substitute is provided. The beans can also be used as a salad after cooking.

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8334.—Ladies' corset cover. Cut in sizes 34 to 42 inches bust measure. Shield and peplum may be used or omitted.

8352.—Children's dress. Cut in sizes 2, 4 and 6 years. The dress is cut in one piece and may have long or short sleeves.

8335.—Misses' dress. Cut in one size. Dress has drop shoulders and a two-piece skirt.

8328.—Children's suspender dress. Cut in sizes 4 to 12 years. The guimpe closes at the front.

8342.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. The waist has plaited fronts and a convertible collar.

8336.—Ladies' dress. Cut in sizes 36 to 46 inches bust measure. The dress is in one piece.

8349.—Boys' Russian suit. Cut in sizes 2, 4 and 6 years. Long or short sleeves may be used.

8325.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in two pieces.

8347.—Children's dress. Cut in sizes 2, 4, 6 and 8 years. The dress is cut in one piece and slips on over the head.

8350.—Ladies' house dress. Cut in sizes 36 to 46 inches bust measure. The dress has a three-gored skirt.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA

Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

(Copyright 1916. The Bobbs-Merrill Company)

CHAPTER XVII.

ENID.

If Persis Dale's extraordinary action in adopting a family *en masse* had stirred Clematis from center to circumference, that agitation was trivial in comparison with the flutter produced by Joel's capitulation. Mrs. West, backed up by Mary, told the news to auditors frankly incredulous who yet were sufficiently impressed by her sincerity to resolve on looking into the thing for themselves. Consequently the Dale homestead became a magnet for the curious, and many a skeptic came and went away convinced that the day of miracles had returned.

As a matter of fact Joel's surrender was in accord with the most elemental of psychological laws. With the characteristic caprice of her sex in matters of the heart, Celia had taken a violent fancy to this pale-blooded hypochondriac, and made no secret of the fact that she regarded him as her especial property. Nothing is so flattering to the vanity as the preference of a child, that naive, spontaneous affection to which it is impossible to impute mercenary motives. And Joel had responded by becoming Celia's abject slave. He ignored the other children for the most part, seldom betraying, unless perhaps by an impatient gesture or a frown, that he was aware of their existence. But his eyes were always on Celia, and when she spoke, he listened.

As was to be expected, that morsel of femininity improved every opportunity to parade her conquest. She took Joel to walk, holding tightly to his hand and entertaining him with an outpouring of those quaint fancies which have been the heritage of childhood from the beginning and yet always seem to the older generation so marvelously new. She inveigled him into playing whatever role she assigned in fantastic dramas of her own creation. He was Celia's father or her little boy as the whim took her, the wolf which devoured Red Riding Hood's grandmother, or the hapless old lady herself, attacked ruthlessly by Celia as wolf. Crawling on all fours he played elephant, or with the handle of a basket between his teeth, he submitted to be patted on the head and addressed as towser. Persis looked on with a wonder that never lost its poignancy. That the self-centered Joel should succumb to the innocent spell of childhood had never entered her calculations, and she reproached herself that she had so little understood him.

The comments of Persis' acquaintances were characteristic. Mrs. West, on the occasion of a second call, hinted her anxiety regarding the future of the impromptu family. "When you pick children up that way, you can't tell how they're going to turn out."

"And when you bring 'em into the world," remarked Persis dryly, "and rear 'em yourself and never let 'em out of your sight when you can help it, you don't know how they're going to turn out either." There was in her manner an ingenious suggestion of having in mind the recent heartbroken confidences of Thad's mother, and Etta West blushed hotly and changed the subject.

Mrs. Robert Hornblower looked upon the acquisition as practical rebellion against the decrees of Providence. In Persis' presence, she said little, having a sincere respect for her ex-dressmaker's gift of repartee. But to Mr. Hornblower she expressed herself in no uncertain terms.

"If it's the Lord's will for a woman to raise a family, it stands to reason He'll send her a husband. This snapping your fingers in the face of the Almighty and gathering up children from here and there and anywhere, looks downright impious."

"Seems to me," began Mr. Hornblower in mild expostulation, "that Persis Dale—"

"Yes, I know, Robert," interrupted the submissive wife. "I feel just as you do. It's always been Persis Dale's greatest fault to imagine that she's a law unto herself. But this time she's overstepped the mark."

"Those children are orphans," exclaimed Mr. Hornblower, his complexion becoming apoplectic. "And if—"

In another instant he would have spoken his mind. Only by raising her voice so his next words became inaudible, did his wife avoid that catastrophe.

"I don't wonder you're shocked, Robert," said Mrs. Hornblower, "to think of her bringing into Clematis children of nobody knows who, to grow up with our own boys and girls and as like as not lead 'em astray. All I can say is that Persis Dale may have a lot to answer for some day."

Though Mrs. Hornblower's stand was somewhat extreme she was not without her supporters. Thomas Hardin's sister, Mrs. Gibson, declared with unconcealed rancor that Persis would have done better to think about getting a husband before interesting herself in securing a family. Mrs. Richards, with sanctimonious rolling of her eyes, admitted that she had recognized long before an inherent coarseness in the character of Persis Dale. Others like Annabel Sinclair exclaimed over the folly of burdening one's self with juvenile responsibilities when free to seek distraction wherever one pleased.

Diantha did not agree with her mother. Ever since the memorable occasion when, with the dressmaker's connivance, she had startled Clematis by growing up between noon and supper-time, she had been one of Persis' attendant satellites. But after the advent of the children she fairly haunted the establishment. She dropped in after breakfast to announce that Miss Perkins credited Algie with having the best head for arithmetic of any boy in her room and came again at noon to suggest taking Malcolm and Celia for a walk. But though she distributed her favors with creditable impartiality, she found the baby peculiarly fascinating. And rather to Persis' surprise, the frail and fretful little creature, who looked askance even at the kindly Mary, fell under the spell of the girlish beauty and always had a smile for Diantha.

"Goodness, child, you do look grown up," Persis exclaimed abruptly one afternoon, as she glanced at the pair snuggled in the depths of the armchair. Diantha had flung her hat aside. Her face was dreamy as she looked down at the little head against her shoulder. All her girlish coquetry, every trace of juvenile mischief, the occasional flashes of petulance which told that she was her mother's daughter had vanished. She looked a brooding madonna.

Ordinarily Diantha would have fluttered at the compliment. In her present preoccupation, it drew from her only a thoughtful smile.

"She's going to sleep," she said, an exquisite softness in her voice. "How nice and heavy their heads feel when they're sleepy, Miss Persis!"

"Well?"

"I'm going to adopt a lot of children some day. I always was crazy to have a crowd around. The way I've prayed for a sister," sighed Diantha, her face temporarily overcast. And then brightening: "When I get old enough to do as I please, I'll make up for it."

Persis, studying the rapt young face, made no immediate reply. Her sense of guilty complicity in Diantha's precocious womanhood distracted her attention from the girl's resentful speech. Apparently her silence proved stimulating to Diantha's impulse toward confidences.

"Do you know the latest notion mother's got in her head?"

"No."

"She wants to send me off to school somewhere. She talks to father and talks to him, till I'm afraid she'll tire him into it. Thad West says any woman can get her way if she never stops talking about it."

Persis regarded her keenly and Diantha's color rose. For no apparent reason her blush became a conflagration.

"I didn't know you and Thad had much chance to talk things over nowadays."

"They won't let him come to the house. They say I'm too young." Diantha laughed mockingly. "And mother was only a little older when she married father, and she was engaged twice before that."

"I suppose you keep on seeing him just the same."

"Course I do."

Persis mused. Diantha was wrong, undoubtedly, and yet more sinned against than sinning. Cautions and expostulations were unavailing with this spirited young creature, smarting under continued injustice and seeing with her uncompromising clearness of vision the selfish jealousy which would keep her out of her birthright indefinitely. "You want to be real careful, Diantha," said Persis, realizing the futility of her words. "Thad's a nice boy and you're a nice girl, but it don't look well for young folks to be meeting on the sly."

She tried, but with little success, to exercise a certain supervision over Diantha that winter. Though the children came down with measles one after another, and Joel had an attack of rheumatism which kept him a prisoner in his bed for seven weeks, it seemed to Persis that Diantha was never really out of her mind. She was surprised on the other hand to find how little Justin Ware was in her thoughts. Instead of returning to Clematis in a few weeks as he had intended, he had been called West unexpectedly. He had not written to Persis to apprise her of his change of plans, and she heard of it only through Mrs. Hornblower. And the astonishing part was that she heard it with scarcely a pang. She had discontinued her practice of saying good night to the photograph in the plush frame with Justin Ware's return, but sometimes when the house was still, she took her stand before it and and studied the pleasant, immature face intently, as if trying to read from its ingenuous smile a solution of some inward perplexity.

The measles and the winter ran their course together. The children ventured out and the daffodils ventured up. Joel hobbled about with a cane and took Celia in search of violets. The baby, who had come very near dying, decided apparently that since recovery was in order she might as well make a thorough job of it and began to grow fat and sweet-tempered and to acquire dimples. And Persis made the pleasing discovery that in the months during which she had been a woman of property, she had not spent her income and resolved at once on rectifying this needless opulence.

"I've done considerable plodding in my time, I wouldn't mind a little skimming for a change," thought Persis. Next to a family she had long craved an automobile. The surplus of her income was

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sufficient for the purchase of one of the cheaper grades of cars. Persis decided on a visit to the city, with a view to making this investment.

"I'm a little seedy with being shut in so much this winter, and a trip will do me good whether I buy an automobile or not. Mary's mother will come and stay with her and help out with the children. And if Joel wants to go along, he can." But apparently the protective impulse which had moved Joel to offer his company on the occasion of her previous visit had waned during the winter. He declined the invitation without thanks.

It was proof enough of Persis' temperamental youthfulness that she reached the city with as keen a sense of adventure as if she had been a runaway boy following a circus. She went to the modest hotel she had patronized the previous fall and was surprised and flattered when the clerk called her by name. "Gives a body a home-coming feeling, that does," remarked Persis, as she wrote the cramped signature which so poorly represented her robust personality. "I don't see how you can remember everybody, with folks coming and going all the time."

"There are some people it's easy to remember," replied the clerk gallantly and at the same time with sincerity. Whatever else time erased from the tablets of his memory, he would never forget Persis, and her acquisition of a family. Then he looked at her interrogatively, for Persis had jumped, blotting the register.

"You'll have to excuse me." Persis reached for the blotter. "I saw a name I know and it sort of took my breath." There were but two signatures on the page besides her own, the names of Mrs. Honoria Walsh and Enid Randolph, both of Warren, New York.

"I'll give you room forty-two," said the clerk, taking a key from the hook and nodding to a watchful lad in uniform. "Mrs. Walsh and her niece Miss Randolph are on the same floor. If they are friends of yours—"

"No, I wouldn't say that," Persis interrupted. "It's just that I've heard of 'em before." As she left the elevator on the second floor, two women glided past her, one the portly widow with abundant crepe who is not easily differentiated, the other a stately girl with blonde hair and a scornfully tilted chin. Instinct told Persis that the latter was Enid.

She enjoyed her first day vastly. She drove some two hundred miles in machines of different makes and listened with keen interest to the arguments proving conclusively that each was superior to all others. Night found her tired, a little homesick for the children, but still happy, nevertheless. She finished her dinner—a good dinner as became a woman of means—and went into the little writing room off the parlor with the intention of jogging Mary's memory regarding the baby's diet. There was but one person in the room, a young woman with fair hair busily engaged in writing.

Persis sat down at the next desk. She was aware of a marked acceleration of the pulse which to her temperament was far from disquieting.

"Excuse me, but isn't this Miss Enid Randolph?"

"Yes."

The young woman looked up from her letter. Though her hair was light, her brows were dark and her air distinctly distant.

"I've always wanted to meet you." Persis spoke with unabashed friendliness. "I've been interested in you for quite a spell. My name is Dale, Persis Dale."

Miss Randolph lifted her fine eyebrows, but offered no further comment on this interesting circumstance.

"Perhaps you'll remember," Persis continued briskly, "that we've had a little correspondence. At least you wrote me about a letter of yours to a Mr. Wash—"

"I remember the incident clearly," said Miss Randolph. For all her chilling air, she glanced toward the door to assure herself that they were not overheard. "It is true I wrote you," she continued with a hauteur which would have reduced a less buoyant nature to instant dumbness. "But I hardly see that this constitutes a ground for considering ourselves acquaintances."

So far from being crushed, Persis smiled. And there was something so frankly spontaneous in her look of amusement, that the young woman colored.

"Bless you, I know it wasn't a letter of introduction," Persis assured her with unimpaired good humor. "But I've always wanted to tell you that when you wrote me that time, you did a lot of good without knowing it. Love letters seem to me like firearms. In the proper hands they're real useful, but if the wrong people get hold of 'em it's bound to make trouble. At least that was the way with the one you wrote Mr. Wash—"

For the second time Miss Randolph looked toward the door, and when next Persis saw her eyes they were appealing rather than disdainful.

"The letter by mistake was sent to a young man who lives in Clematis, Persis continued. "His name is Thompson, and W. Thompson, at that. He thought it such a joke that he put it in his pocket for his wife to find. Didn't know it was loaded, you see. And when she did find it and he explained, she didn't believe him. I don't know as anybody believed him but me, but it seemed such a silly explanation for a sensible man to make up that I felt pretty sure it must be true."

Miss Randolph put down her pen and gave up herself to the business of listening.

"If I could tell you how that little woman looked," declared Persis, "it would just make your heart jump to think it was you that helped her. Only six months married, she was, too. Well, I took a risk and wrote to Mr. Thompson, Cleveland, and when I got his letter I knew everything was all right. But I wasn't sure of proving it to young Mrs. Thompson. After a woman's brooded over a thing as long as she had, with her neighbors egging her on to do something desperate, she's not going to be convinced with anything short of downright proof. But between your letter and Mr. Wash—"

"I don't see," interrupted Miss Randolph quickly, "that she has anything to thank me for. You certainly deserve all the credit, Miss Dale, for clearing up the mystery."

"Well, they were grateful all right," Persis smiled reminiscently. "The baby's six weeks old now, and her name is Persis Dale Thompson. And they're both about as happy as any folks you're likely to see till you die and go to Heaven. But I couldn't have done anything without your help, and I wish I thought you was half as contented as I know they are."

"Really," said Miss Randolph, with an unsuccessful attempt to duplicate her earlier reserve, "it is impossible for me to see—"

"Yes, I know." Persis leaned toward her, speaking with a vehemance that swept the feeble expostulation aside. "But just because I never set eyes on you before ain't any reason why I shouldn't want you to be happy. I've laid awake nights thinking about that letter of yours, so loving and so sorrowful. Dearie, if love pulls you one way and conscience the other, there's only one thing to do and that's the right thing."

"Really," began Miss Randolph, and then her eyes unexpectedly filled, quenching the incipient fire of her indignation. She had recourse to her handkerchief and Persis patted her shoulder, and in that instant the two were friends.

"You don't quite understand," explained Enid in a muffled voice. "'Tommy' isn't married. 'Her' is auntie."

Persis drew a sigh of such unmistakable relief that the girl looked at her amazed. The older woman's face was shining.

"Well, that's a weight off my mind," she smiled. "Nothing but your aunt. Thank goodness."

"A weight off your mind!" Enid repeated. "But you didn't know me."

"No, but I knew you were a young thing in trouble, and that 'Her' gave me many a bad minute."

Enid's fingers reached gropingly toward her new-found friend. Their two hands clasped and held fast.

"Auntie took me when I was a little girl. I was an orphan. She's been everything to me, and she adores me. But she doesn't like Tommy."

"Why not?"

"She hasn't anything really against him except that he's poor. It would kill her to have me leave her to marry him. I can't bring myself to do it. And yet I can't bring myself to give Tommy up." She was crying in earnest now, and the clasp of Persis's hand tightened.

"You can't and you oughtn't. There's too much sacrifice of love these days. Young fellows instead of having homes of their own are supporting two or three grown-up sisters and getting crabbed and bitter. And girls the Lord meant for wives and mothers stay at home because the old folks don't want to spare them. Nine times out of ten it's like Abraham sacrificing Isaac, and there's a he-goat somewhere round in the bushes that would do just as well."

"But it would seem so dreadfully ungrateful to disappoint her," gasped Enid Randolph with the air of one who longs to be disproved. "After she's done everything for me."

"Bless you, child, if you love and are sure of him, the mother who bore you wouldn't have a right to say no. And what's more, if you're sensible enough to go your own way, she'll probably end up by thinking he next thing to made the world and taking all the credit for the match. You're twenty-one, of course."

"Twenty-three."

"Then I wouldnt have any more of this underhanded business. Talk it out with your aunt, and unless she can show you good reasons for giving up your young man, you've got the best reason in the world for taking him."

Enid deliberated. Then very slowly she tore her letter to bits.

"I was saying good-bye to him forever—for the twenty-ninth time." She smiled somewhat palely. "But I rather think, Miss Persis Dale, that I'll take your advice."

(Continued next issue.)

Save the Tin Cans

MRS. S. M. J.

I am surprised that so many of our housewives consider tin cans fit for use only one time. I have cans that I have used, some of them twice a year, for three years, still bright and new looking. Tin is so high now we could not afford to cut open a single can. We pile live coals on top of the can until the solder is melted, then brush them off quickly, at the same time prying off the cap with a pointed knife. As soon as the can is emptied, wash, rinse and set near the stove until dry, then store in a dry place until needed. When I buy a can of goods from the store I save the can, unless the top is put on with a seamer.

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Preparing Stock for Exhibition

JOHN UNDERWOOD

I have had considerable experience in preparing stock for exhibition and will make some suggestions on the subject which may be of interest and benefit to other readers of The Practical Farmer. Of course, good breeding is behind all winning stock. Breed type and character are wanted in every animal. It is important that the animals be taught to make the best of themselves when brought before the judges. An animal that has not learned to walk and stand well or that is constantly trying to break away is likely to hide its best points and present its weaknesses in prominent form. The desire of the exhibitor is obviously just the opposite to this. He wants his animal to make the most of its good points and keep its faults as much in the background as possible. There is much that may be done to farther this object without in any degree overstepping the line which divides fair exhibiting and dishonest faking.

The training of a horse for exhibition ought to start when he is a colt. The youngster can be haltered and accustomed to being led about, walking and stopping as required. This early handling is half the battle, removing many of the difficulties of farther training. Later on the youngster can be taught to move at a walk, trot or canter as required. It is important that he should promptly assume any desired pace when called upon in the show ring. A heavy horse is, of course, not required to move at a fast pace, but it is essential that he should walk and trot in easy, well balanced style, the action being smooth and true. When pulled up the horse should be taught at once to assume an attractive pose with his feet set well out before and behind though without exaggeration. It looks much better if the animal naturally falls into this position than if he does so only after a lot of shifting about by the attendant. Action is important with all breeds and is largely a matter of breeding, but it can be encouraged where deficient. There are various ways of teaching a horse to pick up his feet sharply, one being to use heavy shoes, and another to exercise him on soft ground. The greatest difficulty is experienced with a sluggard whose tendency is to slouch along. Such a horse is best taken on a long lead, the man leading him running before, while the judicious application of a whip by a man behind will induce a smarter action. An active, high-spirited animal is much easier to show well, but he needs to be kept well in hand on a short lead. A poorly trained horse seldom wins even the smaller prizes. Awkwardness or viciousness detracts greatly from his chances. In the great majority of cases, however, training will accomplish all that is desired.

The training of beef cattle for the show ring consists of frequent exercise on the lead so as to render them perfectly tractable. They must walk well and stand easily without any attempt to break away from the attendant. A well balanced walk is a natural trait and is not likely to be produced by artificial means in an animal that is not evenly made, but a good deal can be done to make him show to best advantage when standing before the judges. Some excellent cattle drop their backs when pulled up. This is very undesirable, as a level top goes far in the show ring. Such an animal should be kept on the move as much as possible when being trained, and taught to hold his head low when at a standstill, as the defect then shows least.

The winning power of a dairy cow depends considerably on her ability to produce milk and butter fat. While the judge considers size and shape of udder and length and size of milk veins, the award does not depend altogether on the producing ability of the cow. A good deal of consideration is given to breed type, size, conformation and quality. As a rule, when it is difficult to tell which of two cows is the best they are both milked clean and the decision rests on the quantity and quality of milk produced at that one milking. I consider this is fair enough, provided the cows commenced giving milk at about the same time, but a cow in full flow of milk has more or less advantage over one well along in her lactation period. It is impossible to change the shape or size of udder or size and conformation of the cow, but it is possible by good feeding and careful attention to change her appearance. It is what the judge can see that counts most.

Animals of similar type should be shown where a herd is to be exhibited, so that there will be uniformity in appearance from the herd bull down to the youngest calf. In one breed there are several types and two or three different types in one herd do not show to good advantage.

Sheep that are to be exhibited should be taught to lead well. This can be done only by early haltering and frequent exercise on the lead. This also helps to keep the animal sound on its feet and straight on its legs, so that it walks well and stands square. It is by no means an easy matter to regulate feeding and exercise so that a sheep goes well on its feet while in high condition. Naturally the fleece comes in for much attention and lends itself to the covering of faults of form, though these come out readily enough under the hand of the skillful judge. The shears must be used frequently on the fleece, as it grows right up to the eye of the show, as a smart appearance is expected. There are those who object to trimming, but it is impossible to show sheep to the best advantage in the natural rough state.

Hogs lend themselves less to training for exhibition than any other class of stock, but fortunately less is expected of them in this direction. They must be driven, for they can hardly be led. However, a good deal can be done to make them tractable to some degree by handling them from an early age. Quietness in the pen with frequent rubbing of their backs while feeding, will do much to get them accustomed to handling. There is no danger of too much handling of all kinds of animals to get them "educated" for their appearance before the judges, and more of the entries give evidence of too little training than otherwise.

As a sleek coat of hair is always a winning point, good grooming is a very important feature. Hogs should be groomed as well as horses and cattle. Combing and brushing cleanse both hair and skin for the general health of the animal, and the more perfect secretions of the skin. The clean and bright dress of the animal makes considerable difference in its appearance and the means for obtaining this is through constant use of the currycomb and brush. A comb with too sharp teeth should not be used. One of the best grooming tools I have ever used is a stiff broom with the handle cut off to a convenient length, about 18 inches. Cattle and hogs should be washed as well as groomed. Warm water and soap are used, finishing with mild water without soap. The animal is then carefully dried with cloths and the hair brushed out even and fine. Of course, the animals must be kept clean. They should have all the time a clean place in which to stay. It will be necessary to groom the animals during the days while on exhibition, and if their coats become soiled with manure, etc., this will have to be washed off.

In preparing an animal for exhibition feeding is the most important feature. Especially must the young animal be fed abundantly, regularly and with a variety of food that will produce maximum growth. It is important that the carbohydrates and proteins be well balanced. The ration must contain plenty of mineral matter to make bone. Care should be taken to keep the digestive and assimilative organs in a healthy and vigorous condition. While the animal must be crowded for rapid gains in flesh, bone and finish, it should never be fed so much as to get off feed. The appetite should always be keen. Some green matter in the form of forage should be used with a plentiful supply of dry mixed grain or ground concentrates. The bowels of the animal require careful attention. They ought to be kept moderately loose or active with either green feeds or a little oil meal in the dry feeds. Linseed oil meal in the ration for practically all animals is a good regulator of the bowels. It is a rich feed, too, and has a tendency to make the coat fine and glossy. Meat producing animals must, of course, carry a considerable amount of fat, but they must carry a good frame to support the fat harmoniously. All animals except racing stock and producing dairy cows should be round and "plump," as thin animals of this class stand small chances for winning.

One reason why so few farmers exhibit at the county and state fairs is because most of the ribbon winners are exhibited by breeders of high-class live stock, who make a business of following the fairs. These men are professional exhibitors and the average farmer stands but little chance against them unless he has made a thorough study of the fairs and of the methods of preparing stock for exhibition. This is where so many of the smaller exhibitors lose out, because there is an orthodox method for fitting each class of live stock, and unless acquainted with this their animals cannot show off to the best advantage. More farmers should give more study and attention to fitting and showing their best animals. The fairs are intended primarily to furnish the farmer with an opportunity to exhibit the best that his farm produces, to see what his neighbor produces and to enter into friendly rivalry in the show ring. Exhibiting is one of the greatest influences toward furthering the movement for more and better live stock in the country, and the farmer who exhibits is the one who is progressive in trying each year to produce animals of superior merit to the best of the preceding season.

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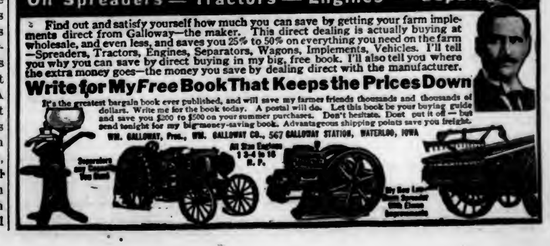

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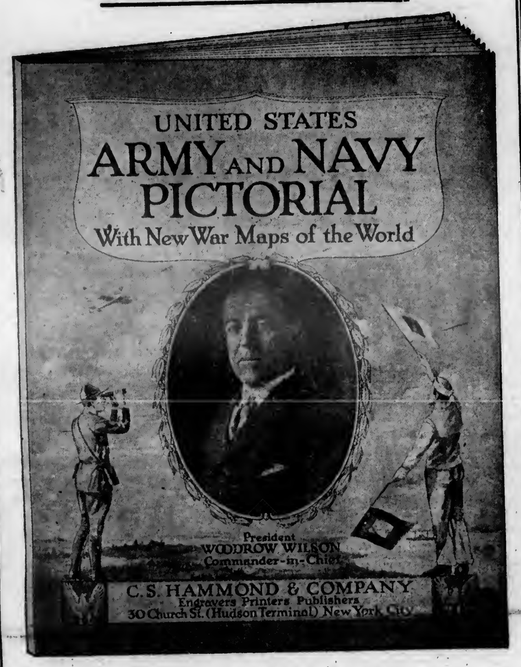

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Read this Carefully

We will send without one cent of expense to any of our subscribers in **Pennsylvania, New York, New Jersey, Delaware, Maryland, Virginia and West Virginia** (we are obliged, because of limited supply, to confine our offer to these seven states) who will fill out and mail the coupon below (*at once*), this splendid Pictorial Atlas of the World War containing

16 Big Three-Color Maps and 37 Fine Army and Navy Pictures

The maps are accurate, handsome, and just what you need to show you exactly how and where our boys are fighting. The new war ships, aeroplanes, big guns, etc., are graphically pictured. The book is one you will need every day so long as this war lasts to help you read the news intelligently.

All we ask in return is a slight favor—a favor we know you are willing to grant The Practical Farmer and that will help your neighbor as well as yourself. Surely, there is at least one farmer in your community who is not a reader of The Practical Farmer and we ask you to help us reach him.

On return of the coupon we send Atlas at once for your examination. If you do not feel that it will repay you many times over for the slight favor, then return it in five days. That is how sure we are that you will want this book in your home.

The Practical Farmer, P. O. Box 1321, Phila., Pa.

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My Name.....

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There were 1636 cows that competed in tests in 1916. This number, compared with previous years, shows the steady increase in the Register of Merit work. The greatest showing that these 1636 cows made was in their general average production, which is as follows: 591 2-year-olds averaged 6574.2 lbs. milk, 359.58 lbs. fat; 268 3-year-olds averaged 7796.4 lbs. milk, 418.76 lbs. fat; 216 4-year-olds averaged 8555.7 lbs. milk, 465.37 lbs. fat; 566 5-year-olds averaged 9174.6 lbs. milk, 487.33 lbs. fat; 1636 cows and heifers, all ages, averaged 7931.9 lbs. milk, 427.26 lbs. fat; average percentage of fat in the 1636 tests was 5.39. A comparison of these averages with the production averages of the breed on all tests prior to December 31, 1915, will reveal the fact that every class average, as well as the general average, has been increased not only in fat, but also in milk. The general average on December 31, 1915, was 7786 lbs. of milk, containing 416 lbs. of fat, with the average percentage of fat at 5.34. The 1916 tests averaged 146 lbs. of milk and 11 lbs. fat higher, and at the same time increased the percentage of fat .05.

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PUBLISHED CONTINUOUSLY SINCE 1855

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Plowing With Light Farm Tractors

By OWEN JONES

RECENTLY a competitive test was given with light farm tractors at the Maryland Agricultural College Farm. There were, of course, a number of different makes and all of them worked, some of them better than others. There were two machines drawn by farm teams. Four good animals, two-and-two, tandem, drew a pair of 18-inch disk plows, the two disks each cutting 6 inches wide and 6 inches deep, or a strip of soil 12 inches wide by 6 inches deep. The disks would have been set to cut wider, but the animals had enough to do as it was. The land was clay loam and the plowing was heavy work. In another field three fine, sturdy mules were hitched to a 14-inch single sulky plow and had all they could comfortably do pulling it when set at 7 inches deep. The smallest tractor was pulling two 14-inch plows and was moving at better speed than either farm team. It showed quite an advantage for the tractors.

There are tractors and tractors, just as with automobiles and with horses. Some tractors will do plenty of good, serviceable work without making any more trouble for the driver than any good automobile does. There are others that are a continual source of trouble and annoyance. In buying a farm tractor it is well to have a guaranty of performance and service. Such a guaranty is a cheap form of life insurance. Why worry your dear life away needlessly?

Efficiency in farm tractors is mainly a question of good design. The best engine cannot give the best results if the other factors are not right. To develop power at the draw-bar, where it is needed to do the most work per gallon of fuel oil used, it is necessary to have greater weight on the driving wheels than on the steering wheels. Not all designers of farm tractors are aware of this fact, it appears. Then again, a small tractor, to do the best possible, should run with its wheels on the unplowed land. Where the wheels on one side run in the furrow the tractor might get overturned on sloping land—which would be quite awkward, to say the least.

Since seeing the competitive test I saw a light tractor elsewhere that was pulling three 14-inch plows, in similar soil, and cutting 8 inches deep. It weighed 3000 pounds and took up about the same space that a heavy farm team does. It was about 11 feet 6 inches from the front wheel to the plow-hitch. I was sorry that it had not been in the contest.

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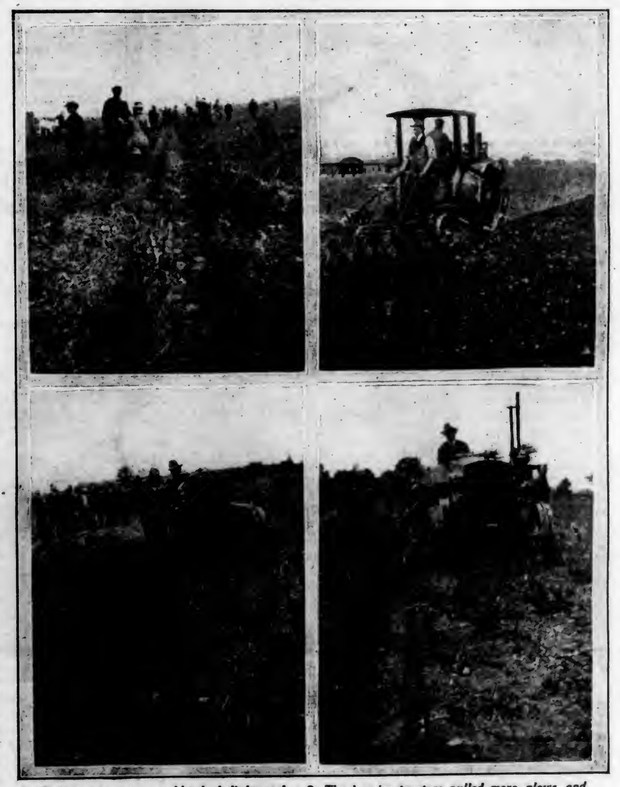
The heavier tractors could draw more plows, with rollers, harrows, seeders, and so on, following. They require two or more men to operate them. However, they are more for the use of the Western than the Eastern farmer. The small sized, light weight, easily operated tractor that one man, or a boy, or even a girl, can operate successfully, is the thing on the small Eastern farm. Any boy or girl who can run an automobile safely can handle one of these light tractors just as easily. There may not be exactly as much "sport" connected with it, but neither is there the same amount of sport to be found in the war trenches in Flanders as there is in a baseball or a football contest. Besides, just now, the need is greater.



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No matter how efficient or how handy the light farm tractor is, or may become as it develops, it can never displace good farm teams completely. It is out of the nature of things to expect it to displace horses for all purposes. A good, light farm tractor can now be bought for $1000, and it will do as much work in eight hours as six to ten horses costing from $1000 to $6000. I have seen good, pure-bred draft mares, that did farm work and raised high-class draft colts that would sell as weanlings for as much as $1000 each, while the mares were valued far higher. That is what the wise farmer on the small Eastern farm must plan to do. Breed high quality draft horses and keep farm tractors to do the heavy drudgery necessary. It will probably cost no more to feed and rear a fine colt that will sell for $500 to $1000 at three years old, than to rear a scrub that will be hard to sell for $150 at five years old.

There is another difference. With the high quality colt you will be importuned to sell; with the scrub colt you will be begging horse buyers to make you an offer for your animal. This is a vital difference, too. Scrubs rarely pay for the feed they consume; pure-breds of high quality are profitable for those who know how to manage them.

There is a limit beyond which no good farmer will push his working teams in the busiest season. Eight to ten hours a day at hard labor is all they can endure. The farm tractor can be run at full capacity for weeks at a time, twenty-four hours a day. So a good tractor has an actual labor capacity in rush seasons equivalent to that of ten 2-horse teams of good farm quality. The ten 2-horse teams would need ten drivers, the small tractor requires but one operator.

It is easier to get two good, careful men on a farm than it is to get ten average men. That is easy to see. I have watched the work of thousands of plowmen in the corn belt, men of skill and ability, with years of experience in plowing, but I never saw one of them that could excel some of these young fellows who were having their first season's experience at plowing with tractors. Even the one with the lightest and worst designed tractor was doing better work—and more than double the amount per hour—than the experienced farm hand was doing with four good farm animals hitched to two plows.

(Concluded on page 273)

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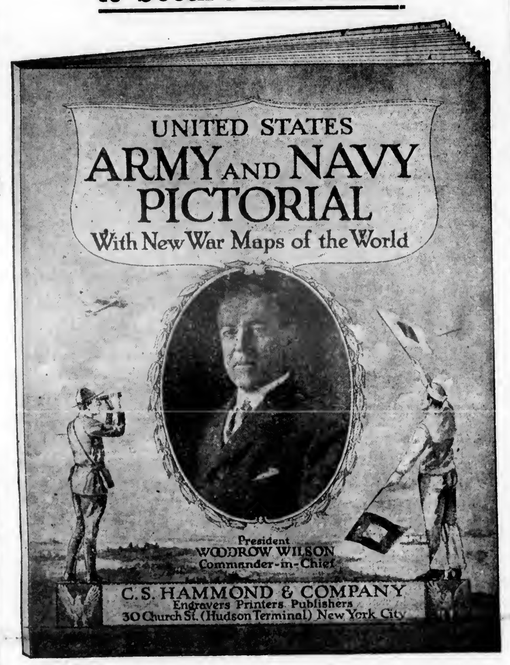

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(Concluded on page 273)

INTENTIONAL SECOND EXPOSURE

Feeding the Next Wheat Crop

L. L. RUMMELL

WAR conditions have made the feeding of the wheat crop this fall a problem for considerable and serious thought. The supply of some fertilizing materials has been cut off almost entirely, and the price of others has risen far above any former valuations. Conservation of domestic resources has been driven home to the American people more forcibly than in any previous period. National appeals to housewives to save all foodstuffs and to practice economy in buying are fully justified. Why should the farmer not be called upon to exercise the same economy in feeding his crops as his wife uses in feeding their family?

Cutting off the entire supply of food ordinarily bought for a crop is not economy in the long run. No successful feeder of live stock would allow his young animals to become stunted, under-developed and consequently less profitable by limiting their feed to what they could gather for themselves in the pasture fields. And no sound-minded farmer would allow his crops to "rustle for a living" from the soil itself, if he knew that a little additional feeding in the way of manure or fertilizer would start the crop off in a vigorous growing condition, with a head start on the poorly fed crop, and at harvest time would pay back in larger yields all the cost of the treatment and a return on the investment that is far greater than any rate a bank can afford to pay its depositors.

Showing the difference between unfertilized (to the left) and fertilized (to the right) plats at the Ohio Experiment Station. Good tillage and drainage are not all the essentials

Returns are quick and sure from feeding the wheat crop on the average soils of the East and Middle West. It is one of the chief money crops in common rotations and responds readily to fertilization if any crops do. It is a crop that cannot be "roughed through the winter" on little feed.

This year the question of buying commercial plant food for wheat can be solved by studying just a few materials on the market, as well as the products found right on the farm. When the supply of salts from the Strassfurt mines of Germany was cut off, the cost of these carriers of potassium rose so high as to prohibit their use. Now the amount of nitrate of soda coming from Chile, South America, is limited, and the price has made the use of this carrier of nitrogen doubtful.

Fortunately the carriers of phosphorus are still available and at reasonable prices. American farmers may well be glad this country depends upon no foreign nation to supply phosphatic fertilizers. An added advantage comes in here in the fact that phosphorus is usually far more profitable in wheat production than either nitrogen or potassium. This year the element phosphorus should be given first attention among the commercial plant foods.

Such conditions in the fertilizer market make the conservation of farm manures more important. The stable may become the sole or principal source of nitrogen and potassium, and legumes may lend a hand in this crisis by furnishing some additional nitrogen to that supplied in manure.

With all these perplexing factors to confront, the Ohio Agricultural Experiment Station is waging its campaign for sixty million bushels of wheat for that state in 1918. It realizes the problem facing the world with regard to the food situation. More particularly the question in this country is to produce foodstuffs for our allies as well as for home consumption. To learn war-time measures in farming, more than three thousand farmers visited the Ohio Station on the annual Wheatfield Day, June 22nd, and nearly as many came in three delegations within a few days from that date.

How to double the production of wheat in Ohio this year was the theme of the speakers at these gatherings. It is the central point about which efforts are concentrated this year among the agricultural experts in Ohio as in other states.

But what are the controlling factors for raising the wheat yield in such a situation? Here are a few of the pointers farmers about Ohio are taught in order to accomplish this end:

Fertilizers are essential to high yields, just as good tillage and drainage are. Profitable fertilizers are reduced to acid phosphate, raw phosphate rock (floats) and steamed bone meal. Materials carrying nitrogen (more commonly spoken of as "ammonia") and potassium (more commonly termed "potash") have been limited and exceedingly high-priced.

Eighty bushels of wheat have been produced in Ohio experiments from every ton of acid phosphate. Unfertilized clover crops following wheat have produced increase sufficient to pay the cost of fertilizing, leaving the increase in wheat as clear gain. This increase from acid phosphate is based upon more than a hundred wheat crops harvested in 23 years on experimental farms in eight counties of the state.

While a fertilizer containing nitrogen, phosphorus and potassium has returned $15.78 net profit when used at the rate of 1,070 pounds per acre in five years in a rotation of corn, oats, wheat, clover and timothy at Wooster, 320 pounds of acid phosphate alone has returned $13.92 net, as an average of 20 years. In other words, 100 pounds of acid phosphate has been worth nearly three times as much in net results as the equivalent amount of a complete fertilizer.

As a result of manuring, proper fertilization and rotation this field at the Ohio Station for 13 years has averaged 34 bushels of wheat to the acre or more than double the average state yield

When acid phosphate is abnormally high in price, raw phosphate rock may be an economical substitute. Larger quantities of the raw rock are necessary, and decaying organic matter increases its value as a fertilizer. While 320 pounds of acid phosphate gave a net gain of $3.07 an acre in three comparisons made in a three-year rotation of corn, oats and clover at the Ohio Agricultural Experiment Station, the same quantity of raw phosphate rock returned $1.81 as an average of all crops grown during 11 years. Raw phosphate rock was profitable, but the acid phosphate was more effective and economical. Today acid phosphate prices are rising. Raw phosphate rock, if proportionately lower in price, may be used to keep the price of the acidulated goods down.

From 800 to 1000 pounds of raw phosphate rock to the acre may well be applied to wheat ground this fall, provided the price of the raw rock is proportionately lower than that for acid phosphate. This phosphorus in raw phosphate rock is made available by the acids in decaying organic matter. Barnyard manure is valuable for this purpose. If the supply is limited two tons to the acre will help with the raw phosphate rock on the wheat. The manure and fertilizer should be applied after plowing, to be most effective. The fertilizer may be mixed with manure at the time of hauling, or applied with a lime drill later.

Manure has a value in itself as a carrier of plant food. A ton of average manure contains 10 pounds of nitrogen, 2 pounds of phosphorus and 8 pounds of potassium. Nitrogen in nitrate of soda now costs 20 cents or more a pound and phosphorus in acid phosphate 15 cents. Potash now costs 40 to 50 cents a pound, and before the European war only about 5 cents. At this latter figure and with the other prices given manure is seen to have a value of $2.70 a ton in the actual plant food it contains.

For 23 years the value of manure has been tested by the station at Wooster, for 20 years at Strongsville and for 12 years at Germantown and Carpenter. Every ton of manure has returned more than a bushel of wheat, even though the application is generally made to some other crop in the rotation. Thus eight tons of manure applied to corn in a three-year rotation of corn, wheat and clover has raised the wheat yield from 11.8 to 21.4 bushels per acre for 18 years. The corn yield has been increased 21.3 bushels during the same time from the direct application of manure. Only 55 per cent. of the value of the manure was realized in corn.

If manure is available it may find suitable use on wheat ground this fall. It will supply the needed nitrogen and potassium at much lower cost than any fertilizers will. But to be of greatest use it must be taken directly from the stable to the field, or else kept in a covered yard. Otherwise leaching will occasion a loss of about one-third the nitrogen, one-fourth the phosphorus and one-half of the potassium within three months time of exposure in an open yard. This means a loss of 67 cents in nitrogen, 8 cents in phosphorus and $1.60 to $2 in potassium, with fertilizers at present prices. Surely manure is too valuable a by-product to be allowed to waste away unprotected in an open barnyard.

Wheat yields are also increased by proper rotations. From 25 to 50 per cent. may be added to the acre yield by growing the crop in rotation rather than continuously on the same land. Clover, alfalfa, soy beans and other legumes deserve considerable credit for boosting the yields of crops that feed on the added plant food left by them. Some lime may be needed for full results to be realized from the legume. Here, again, on land deficient in this material, applications are highly profitable. Acid phosphate, barnyard manure and legumes form a triumvirate hard to equal in any system of permanent and economical farming.

Experiments prove that wheat yields may be increased by liming, but greatest benefits accrue when lime is used in the spring. Fall applications on wheat are also profitable if the soil is deficient in lime. From 21 to 26 per cent. more wheat was harvested in 1916 from fertilized and manured plats at the Ohio Station where lime was used. In this case liming preceded corn planting in a rotation of corn, oats, wheat, clover and timothy.

"Sixty million bushels of wheat in Ohio in 1918" is the slogan that has been adopted as representing a part of what Ohio should contribute toward winning the war. Ohio's wheat crop in 1916 amounted to 20,250,000 bushels and the 1915 crop was 40,194,000 bushels.

Ohio.

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.
EDWARD T. WALKER, Managing Editor
THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS
W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE
F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES
J. C. Billingslea, 119-123 W. Madison St., Chicago.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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AUGUST 1, 1917

"Delay, Linger and Wait"

HOW much longer will Congress and the authorities at Washington keep us on the anxious bench? We have a big proposition on hand—this war with Germany—bigger than anything we have ever tackled before; still the farmers and business men are at times perplexed as to what way to go at things, not knowing how the government is going to act. A few months ago all hands joined in the universal chorus to the farmer, "Produce more." That advice was taken as given and so far records show that we have produced considerably more and the prospects of the coming harvests are gratifying. Now that we in a small way have "done our bit," we would like to see the other side do some constructive work.

Only a few days ago the ship building program was given a new start by the President relieving from office those who had been holding matters up and putting in their places an entirely new board. General Goethals, showing his broad view of matters, resigned when he considered it to the best interests of the nation, while Lawyer Denman, who had been thwarting every move made by the General, was asked to resign. It is to be hoped that the new board will continue the broad policies started by General Goethals, so that when the time comes ships will be ready to carry our various products overseas.

The food control bill is being tossed from pillar to post, much, undoubtedly, to the delight of our former friend the Kaiser, showing to him how united we are in putting through measures before the time has passed when they are of any use.

The business of the country is at a standstill awaiting the passage of the war revenue bill—"Business as usual" is an impossibility until we know what adjustments must be made to meet the requirements of this important measure. Yet the Senate Finance Committee's improvements on the bungling revenue act of the House rests in committee while the Secretary of the Treasury figures on new requirements and asks for heavier taxes. For our part, we fail to see why grievous, and in some cases almost unbearable, taxes should be imposed on our citizens of the present generation, who are bound to bear the heavier burdens of the fighting and unprecedented business and labor conditions. The financial burden, at least, should rest largely on the shoulders of succeeding generations who will gain from a victory in this war even more than we of this generation, since it will mean peace, liberty and democracy to them, bought by the blood of their fathers. But in any case, whatever is to be done in the way of a war revenue act should be done quickly, for almost anything will be better for business than this suspense.

War knows no party lines. English, French, Italian—and even Russian—governments are formed of men who, while they may at one time have been opposed politically, are now working as a unit with only one end in view. This country has men who can do, and have done, big things, and now is the time we need them. Possibly before the war is over this country will have to see the formation of a coalition cabinet, a real war cabinet. We well know that our present government was not elected and selected to carry on war. A "Peace Platform" carried the majority of the votes of the country last fall. With delays, inaction and petty differences in most branches of the government we sometimes wonder whether all realize that we are at war with a formidable foreign power and need all our resources and ingenuity to preserve the very existence of democracy.

Concerning War Taxes

SPEAKING of the raising of war revenue, it seems to us that the plans proposed in both the House of Representatives and Senate are fundamentally wrong. Every one of us should naturally be willing to cut down on our luxuries and some of our living expenses and give to the cause of our country this saving, but the burden should fall justly on the shoulders that are able to carry it and in proportion to each one's ability to bear it.

Our idea is that all taxes for war revenue should be levied on profits and incomes—the profits of business houses and corporations and the incomes of individuals—the percentage of the tax varying as the profit or income is large or small. In this way, and in this way only, will the cost of carrying on the war fall on all citizens in proportion as they are able to meet it.

The war revenue act passed by the House of Representatives is a haphazard, hit-and-miss measure, taxing all sorts of things, some justly and some unjustly; under its provisions some are taxed more than they can bear, while others escape with little or no increase in their present taxes; undoubtedly our Representatives acted with sincerity in drawing up this bill, but its eccentricities and injustices suggest to many that the taxes imposed are measured by the strength of influence and the lobbies of the parties affected. The Senate Finance Committee appears to have improved upon the House measure, but in principle it is the same in that it taxes all sorts of things and people without justice, because it does not confine itself to the direct tax on the only justly taxable things, profits and incomes.

As an instance of this injustice we might point to the way publishers have been handled in both the House and Senate revenue bills. In the House bill, second-class postage rates were raised from the flat rate of a cent a pound which has prevailed for many years, to from double to six times that rate, depending on the parcel post zones into which the paper mail is to be sent; the Senate Finance Committee in revising the act cut out the unjust zone system and increased second-class postage by a flat quarter of a cent per pound, but in addition levied a special tax of 5 per cent. on publishers' profits in excess of $4000 per year, in addition to the taxes on income and profit which publishers are to pay in common with other citizens under the terms of the bill. Now why should publishers be singled out for these special taxes? If publishers make more money than other business men, a straight tax on profits and incomes would make them pay more proportionately into the Government's hands, just the same as any other firm or individual having similar profits and incomes would pay. The fact of the matter is, however, that publishers have not thrived under war conditions; everything that enters into the making of a newspaper or magazine has increased tremendously in cost and at the same time advertising carried by the papers and magazines has decreased in quantity; the effect of the war revenue measure as now planned, therefore, is to place on this line of business an unjust and extra heavy burden; while many other lines of business which have profited enormously under conditions arising from the war are not called upon to pay taxes in proportion to their profits. In the one case diminished profits are utterly wiped out and losses are actually taxed, while in the other excessive and unusual profits are let off with only a light levy for the Government's benefit. There are many other examples which might be cited to show the injustices and hit-and-miss methods of the war revenue measures now before Congress.

Tax big profits and incomse largely, tax little profits and incomes moderately and stop there. This is the just way to raise war revenue—and surely all of us are willing to meet our just share of the nation's need in this emergency.

How Much Wheat in 1918?

RECENTLY two Eastern states have announced campaigns to increase their wheat acreage for the 1918 harvest. Ohio has set its goal for a harvest of 60,000,000 bushels one year hence, while New York will endeavor to plant this fall 1,000,000 acres for its share of the world's granary supply at that time. Some of their neighbors in order not to be outdone by these two early contestants, undoubtedly, will undertake similar work, so that we ought to see a wonderful increase in the wheat acreage. With Congress now favoring a minimum price of $2 per bushel for this grain, everything looks favorable for the success of these plans, and for profitable returns to those who carry them out.

Why shouldn't we of the East grow more wheat when the price guarantees us a profit? Some years ago, before the opening up of the great Western wheat fields, New York was in the front rank as a wheat producing state. One of the great advantages of wheat is that it occupies ground which would otherwise lie idle all winter subject to the forces of nature which tend to destroy rather than build up land, especially where the ground is not level. The advent of the silo, enabling corn ground to be cleared early enough to prepare it for wheat, has turned thousands of otherwise barren winter fields into profitable wheat fields. There is hardly a farm of any size which could not find a few spare acres for additional wheat seeding this fall; possibly it is the poor sod field which did not turn out as well as you thought it ought. A good point in wheat's favor is that it is a crop which does not require much horse and man labor after it is once planted. The yield per man employed is high, and during these days of short and high-priced labor this fact demands more than passing notice. When it comes harvest time inexperienced help can be utilized to advantage.

Our enthusiasm, however, for more wheat in 1918 should not allow us to lose sight of the 1919 harvests. There is a limit to the profitable breaking up of well planned crop rotations, and as no one can tell just when this war is going to end it is well to look to the future. With the potash and nitrogen shortage big crops will have to depend on something else, not the least of which is good grass sods to turn under. We must be careful not "to kill the goose which lays the golden egg."

Long Live the Country Fair!

WITHIN a few weeks we will be in the midst of the annual round of country fairs. There will be big ones and little ones, good ones and bad ones, depending on the progressiveness and moral standards of the communities in which they are held. They occupy a place in country life which no other institution does, and even the smallest and poorest have their good points. They are the pre-eminent get together events of the year, and if they existed for no other reason, the new visions which they create in those who rub shoulder to shoulder even for a day are well worth the effort made by those who visit them.

As an inspiration for better farm products it is hard to estimate the value of a true country fair. Many is the producer who thought his products the best possible until they stood alongside of others and he acknowledged defeat. The real man, however, always comes back the following year and is never satisfied until the blue ribbon is his.

A few days ago representatives of the American Association of Fairs and Expositions, meeting at Washington, offered the Secretary of Agriculture the services and appliances of the state fairs for whatever use that official might consider best during these times when so many vital matters are to be presented to the public. It was pointed out that these fairs annually have an attendance of fifteen to twenty million people and that the fair associations will co-operate in attracting the attention of this great audience to any national measures. In passing it is well to recall that one of the greatest Eastern fairs, the Allentown Fair, will not be held this year, as the grounds and buildings are being used to train approximately 5000 men in the ambulance service before their aid is needed in France.

In another column we are printing lists of agricultural fairs to be held this year in the Middle Atlantic States so far as we were able to obtain them from the state secretaries of agriculture. In the rush of increased production don't neglect the fairs this year; they provide opportunity for comparison which is invaluable.

The Garden in August

W. F. MASSEY

It will pay to give a light dressing of nitrate of soda alongside the rows of asparagus, for the stronger the growth made now the stouter the shoots will be next spring.

Early in August sow spinach for fall use. A second sowing later in the month will run until Christmas. Here we sow usually three times, once in early August, again in late August and the third time the middle of September or later to merely get strong enough to winter over for spring cutting. If the winter is mild this will often be ready to cut in February, and a sowing can be made then for spring use, though we seldom sow any in spring, for the late fall sowing usually lasts as long in the spring as that sown in February. Sow the seed in rows about 15 inches apart. After the plants are well up scatter some nitrate of soda along the rows and then watch the plants jump up and grow.

A sowing of string beans early in the month will make plenty of tender beans for canning or packing down in brine. The Red Valentine is a good sort for this purpose.

Early Milan turnips sown early in the month will come in nicely in the early fall. These turnips grow almost as quickly as radishes, but are not suited for winter keeping. For later use sow Yellow Aberdeen and the Purple Top Strap Leaved. Here the terrapin bug, Murgantia Histrionica, is apt to atttack turnips, and if not checked will destroy the tops, sucking the very life out of the leaves. Spraying with kerosene emulsion is about the best we can do, for poisons are not taken by the sucking insects. In the South the green aphides will often do much damage. These are easily kept down by sprayings of a strong decoction of tobacco of the concentrated sulphate of nicotine.

South of Philadelphia August is early enough for setting plants of late cabbages for head for winter keeping. Those heading in November will keep far better than any headed earlier, and any that are not well headed when freezing weather threatens can be tucked away so that they will head during the winter. Of course, the seed must be sown earlier, and strong plants at hand for setting. A good strain of the Late Flat Dutch is as good as any, but I use the Drumhead Savoy for the home table because of its better quality. The Danish Ball Head does finely in any fertile soil except that it does not succeed well in the limestone soils. At least this is the report from the Pennsylvania State College.

Snowball cauliflowers can also be set for fall heading. Good heads of cauliflower depend largely on the feeding of the plants and not allowing them to get checked in growth by lack of moisture in the soil. Any stunting will lead to the making of little buttons instead of good heads. With these, too, the application of nitrate of soda once or twice during growth will make a wonderful difference in the plants and the heads. Like all the cabbage family, the heavier they are fed and the faster they grow the better the cauliflowers.

While July is the best time to sow carrots for winter table use, the early varieties can still be sown. The Early Horn is good, and even the Half-Long Danvers will still make fairly good roots.

When the curled endive plants are well grown, tie the heads up loosely to blanch. Turning a large flower pot over the head will also be good if the pot has something under its edge to open a circulation of air below. Otherwise it will get too hot.

If you want small cucumbers for pickling you must gather them daily, for they swell in size very rapidly.

Keep the tender pods on the okra cut closely, even if you do not wish to use them at once, for they can be sliced and dried. If left to mature on the plant the growth will be checked and the plants will stop making new pods.

As fast as the ears are taken from the corn stalks, pull out the stalks, and leave no stumps in the ground, and by the time all are eaten or too old you can have the ground clear for something else.

Leeks transplanted in July must be kept cleanly cultivated and the soil pulled to them and finally earthed up a little in order to get the long white shanks for winter use.

Sow early in August the Green Curled Scotch kale for fall cutting. About the middle of the month sow Norfolk Curled kale for winter and spring use. All leaf plants demand heavy applications of nitrogenous fertilizers.

Lettuce seed sown early in August will make nice plants for heading in the open ground in the fall. I use the Hanson and the Wonderful or New York for this crop and later sow the Grand Rapids and the Big Boston for setting in the frames for late fall and early winter heading. The fall crop for the open ground I set in beds 6 feet wide, setting the plants about 10 inches apart. Then push the rapid growth by side dressings of nitrate of soda and the use of plenty of water in dry weather. They must be grown rapidly or they will run to seed without heading.

Do not let the cantaloupes stay on the plants until they turn yellow Pull them as soon as they will slip from the stems with a very slight pull. Then they will be sweet and good. Pulled too early they will not be sweet, and left too long they lose flavor.

Sow parsley now in a cold frame to have it ready for the sashes in the fall and thus have a supply all winter. In fact, the spring-sown plants can be transplanted to a frame and will not run to seed until next spring.

Get onions well cured and then put them in the darkest and coolest place you have.

Gather the pepper pods as soon as fully grown and the plants will keep on bearing. For a sweet pepper I now use the Pimiento solely. It is the mildest pepper grown, has not a trace of heat, and is the most prolific cropper I know of. From early in summer until frost stops the plants the pods are continually being produced.

Keep the parsnips and salsify clean of grass and weeds.

Set out plants of the Brussels sprouts just as you would cabbage. These will make the little heads before frost and will be greatly improved by being touched by frost.

A sowing of an extra early English pea can be made the first of the month in deep furrows, covered lightly and the soil gradually worked to them so as to have the roots well into the moist earth. Mildew is the worst enemy. Spraying with Bordeaux mixture will prevent this, and if the green aphides attack them spray with a solution of sulphate of nicotine.

The late Irish potatoes, too, must be sprayed with Bordeaux mixture to ward off the blight. If any beetles appear spray with a pound of lead arsenate in every 30 gallons of the Bordeaux. Down here in eastern Maryland this season has been remarkable for the absence of the Colorado potato beetles. Last year it was a constant fight to save the potatoes, tomatoes and eggplants. This summer I have not seen a potato bug.

Sow now seed of the Chinese Celestial radish. This grows as large as an ordinary ruta-baga turnip, and still remains crisp. Boiled like turnips it makes a better dish than turnips. It is white in color. Then there is the Scarlet China, which is excellent and easily kept crisp all winter.

A Bed Method of Growing Celery

August is the time we set celery for the winter crop. This bed method is in common use around Baltimore, and can be used anywhere south of, or even at Philadelphia. The things needed are a garden line, a planting board 6 feet long and a foot wide with ends squared and two cords of twine about 8 feet long with a peg in each end. The garden line is set on one side of the bed that is to be. Beginning at one end we set the board (which has notches cut in the edges every 6 inches) perpendicular to the line and set a plant at each notch. Then moving the board to coincide with the plants last set we set another row, and so on until a bed is as long as needed. We then have 11 plants in a row 6 inches apart and a foot between the rows. Now the bed is to be kept clean of weeds until the plants get so large that the outer leaves are inclined to fall over. Then the setting up process is needed. Starting at one end of the bed we stick one of the pegs in the ground and take a turn of the twine around each plant in the row. Then stick the other peg and with the second twine treat the next row in the same way. Then the soil is shoveled in between the rows and packed close to the plants. Later, when the nights get cool, the earthing begins. The soil is shoveled in between the rows and carried up 6 inches outside the ends so as to make the bed fully 6 feet wide. The plants are kept with the growing heart just above the soil. Finally, when hard freezing threatens, generally here in late November, the whole bed is earthed over and covered thickly with pine leaves or straw and corn stalks or bean poles laid over to prevent the cover from blowing off. We can now get the celery as wanted during the winter, and only have to lift it as wanted for use, and it is far more crisp and fresh than that which is lifted and stored.

Controlling Cabbage Worms

It is estimated that 8000 acres of cabbage are under cultivation in New Jersey at the present time. It is expected that cabbage worms will be more destructive this season than ever before. Accordingly, the State Agricultural College, through its extension specialist and the county agents, is urging the growers to apply the most approved remedial measures in time to prevent any destruction. The best remedy for cabbage worms and caterpillars is the use of arsenical poisons, such as Paris green and arsenate of lead, applied as a spray or as a dust, in much the same way as poisons are used on potatoes to control potato bugs. Greatest success in control of cabbage worms is had only by applying the poisons before the heads begin to develop. At this time the poison is accessible to all parts of the plants and is therefore more effective. Some growers hesitate to apply poison for fear that it may cause injury to people who eat the cabbage. This idea is absolutely unfounded, according to all scientific investigation.

August is the time to start perennials from seed for next year's flower garden.

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Mid-Summer Field Crop Ideas

A. E. GRANTHAM

Growing Buckwheat

Buckwheat requires a very short season. For this reason it may be seeded later than most crops. It requires about 10 to 12 weeks from time of seeding to harvesting. Under certain soil conditions this period is somewhat shorter.

Buckwheat will grow on a variety of soils. In fact, on infertile, poorly tilled lands it will produce a better crop than any other kind of grain. The plant, however, responds rapidly to good soil preparation and to proper fertilization. It seems to prefer an acid soil, as the best results are not secured where the land is heavily limed. Land especially rich in nitrogen is not well suited, as the crop is likely to lodge.

The fact that buckwheat matures in a short time and is not exacting in its soil requirements renders it a desirable plant to seed at this season of the year. Wheat or oats stubble, early potatoes or early truck crops may be followed by buckwheat. Very often the crop is sown hurriedly, very little time being given to fitting the land, or allowing it to settle. In a dry season this may seriously affect the yield. The seedbed should be firm and well supplied with moisture, so that the plants will grow steadily through the season. The extra day spent in preparing the soil will be well repaid at harvest.

On most Eastern soils it is well to use about 200 pounds of acid phosphate per acre. Stable manure should not be used unless the land is very poor, and then rather sparingly. The time of seeding will vary with the latitude and elevation. South of the latitude of Philadelphia buckwheat may be seeded from August 1st to August 15th. On light, sandy loam soils seeding may take place later than on heavy land.

The rate of seeding varies from 3 to 5 pecks per acre, the usual quantity being 4 pecks. If the seedbed is in good condition and the weather favorable the minimum quantity will be sufficient. In some sections in Delaware and Maryland Crimson clover is seeded along with the buckwheat. In this case the buckwheat is seeded at the rate of 2 to 3 pecks per acre, with 10 to 12 pounds of Crimson clover. The depth of seeding should range from one-half to one inch.

Seeding Alfalfa

There are many who will attempt their first seedings of alfalfa this year. Much has been said of the necessity for liming and inoculating the soil for this exacting crop. These treatments are necessary, but the beginner must not overlook thorough preparation of the soil. The alfalfa is a tender, delicate plant when young, consequently the seedbed must be put in a fine state of tilth before seeding. This means that the land must have moisture. In order to have plenty of moisture in the soil the ground must be plowed early, at least a month before seeding, or a longer time if possible. As fast as the land is plowed it should be worked down and leveled. Then after each shower it should be thoroughly harrowed each way so as to conserve the moisture and make the surface smooth. It is very important to have the soil in such condition that every seed will grow. Many make the mistake of hurried or careless preparation, which results in an uneven and weedy stand of alfalfa. At the time of seeding the soil should contain plenty of moisture. This is only possible when the land has been thoroughly worked. I have seen soil prepared for alfalfa where there was sufficient moisture for germination after a month of dry weather. If the soil is not moist near the surface it is best to postpone seeding until there comes a rain. The best time to sow is after a good rain as soon as the ground becomes dry enough to work well. If the soil is a little dry when seeding, or not compact, it is best to follow the seeder with a roller.

The Preparation of Wheat Ground

The successful growing of wheat depends very largely on the preparation of the soil. It is not enough that the ground be plowed and harrowed and the seed sown, but the manner in which this is done is the determining factor. Early plowing so that the soil will have time to become thoroughly settled is important. The earlier the ground is plowed the better, providing it is harrowed and leveled so as to prevent undue loss of moisture. The early plowed field is in a condition to absorb the summer rains. If the soil is harrowed after each good rain and a mulch formed the maximum amount of moisture will be retained. Likewise, early plowing and frequent harrowing tend to make available plant food. The seedbed is more likely to be level and uniform if prepared in this manner. How important this is is shown in the stand of plants. If wheat is sown on hastily prepared land the seed fails to germinate or starts slowly in those places where the soil has not thoroughly pulverized and lacks moisture. The surface 3 inches of the field should be level and in a fine condition of tilth at time of seeding. Nothing contributes to a strong, even stand of wheat more than a well prepared seedbed. If through faulty preparation the plants are of uneven growth they are much more likely to be affected by the freezing during the winter months. The time spent in putting the land in good physical condition for wheat sowing is well repaid in the increased crop. Moreover, fertilizers are more effective when the soil is in good condition.

Try Some Sweet Clover in a Small Way

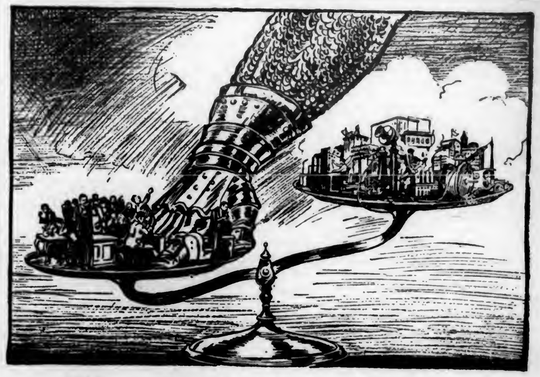
Much is seen in the agricultural press about Sweet clover. The writer has had considerable experience with this legume and believes that its greatest value for the Eastern States is as a green manure crop. Two years ago in a green manuring experiment at the Delaware Station, Sweet clover was seeded in the spring with oats as a nurse crop. In a like manner Mammoth Red clover and alfalfa were also sown. At the time the oats were cut the Sweet clover had made much more growth than either one of the other legumes. It was so tall that 6 to 8 inches were cut off by the binder used in harvesting the oats. The alfalfa made the next best growth and the Mammoth Red clover last.

Sweet clover is a nitrogen gatherer and at the same time its deeply penetrating roots perforate the subsoil far more rapidly than even alfalfa. It also grows more rapidly than alfalfa. Our observations are that it will serve a better purpose as a green manure crop than any other clover. Experiments with Crimson clover by seeding it in corn have given good results except on land that is a little wet. There it tends to heave out rather badly, owing to the large tap roots.

Sweet clover prefers a sweet soil, as does alfalfa. Likewise it should be inoculated for the best results. Sow about 15 to 18 pounds of seed per acre either in the standing corn or in the open. Use the scarified seed, as it will germinate more quickly. It will pay you to become familiar with this plant, as it is destined to become a valuable crop for soil improvement.

Applying Ground Limestone

The shortage of cars and the difficulty of securing prompt shipments caused some farmers to defer liming this spring. The late summer now offers more leeway in getting this work done. Since the ground limestone may be applied at any time without injury to the crop, it is well to make the application at this time. Wheat stubble in which clover is being started may well be limed. Likewise sod land that is to be turned for corn next year should be similarly treated. Ground limestone should be bought in carload lots, since at least two tons should be applied per acre. An excess will do no injury. By purchasing in car lots and applying during August when the land is firm and dry the work is done with the minimum amount of effort. The lime distributor is necessary in order to get the material evenly applied. Farther, the ground limestone is not caustic and may be handled during the hot weather without discomfort. It is generally more convenient even when buying car lots to have the limestone shipped in 100-pound bags; this facilitates handling and the bags may be returned. Applying limestone to the surface in the late summer allows it to gradually dissolve during the winter and to penetrate the surface soil where it corrects the acidity.



The Weight of War

The heavy hand of war has disturbed the balance between supply and demand the world over. Our problem of serving the public has all at once assumed a new and weightier aspect.

Extraordinary demands on telephone service by the Government have been made and are being met. Equipment must be provided for the great training camps, the coast-defense stations must be linked together by means of communication, and the facilities perfected to put the Government in touch with the entire country at a moment's notice.

In planning for additions to the plant of the Bell System for 1917, one hundred and thirty millions of dollars were apportioned. This is by far the largest program ever undertaken.

But the cost of raw materials has doubled in a year. Adequate supplies of copper, lead, wire, steel and other essentials of new equipment are becoming harder to get at any price, for the demands of war must be met.

Under the pressure of business incident to the war, the telephone-using public must co-operate in order that our new plans to meet the extraordinary growth in telephone stations and traffic may be made adequate.

The elimination of unnecessary telephone calls is a patriotic duty just as is the elimination of all waste at such a time. Your Government must have a "clear talk track."

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
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One Policy One System Universal Service

Ask the Dealer for WARNER'S
"LIMOID"
PURE HYDRATED LIME—BEST FOR FARM LANDS

Implements or Munitions Farmers or Soldiers

Government action ensuring America's farmers ample supplies of farm implements and competent farm labor is vitally necessary to this country's future participation in the war, declare the manufacturers of American farming tools and machinery. This action must be immediate and radical, they say, or else in 1918 the United States will fail to produce the surplus of foodstuffs absolutely required to feed the civil population of our allies and to keep their and our armies in fighting trim.

This declaration is made in a public statement by the National Implement and Vehicle Association, whose members manufacture most of the farming implements used in the United States. It is the Association's answer to an anxious inquiry about reports of a prospective implement shortage addressed to it on behalf of the country's farming interests by ex-Governor W. D. Hoard, of Wisconsin, a leader in American agriculture. The statement, which is signed by Charles S. Brantingham, chairman of the Association's Executive Committee, says:

"The truth is that unless prompt action is taken by the Government, our country is headed straight toward the self-same mistakes that have resulted in compelling our allies to come to us to save them from famine. Unless we protect the production of labor-saving farm machinery and the supply of skilled farm labor we, too, must soon face a shrinkage of food supplies. Anybody can realize how calamitous that - ould be, in the military as well as the economic sense.

"The trouble with the food production of Europe is far from the battle zones, in fields that lie idle for lack of men and machinery to cultivate them. The same trouble is due to overtake us soon. Without such action as is here suggested and urged, the farmers of the United States will not have enough machines or men in 1918 to meet the demands upon them.

"We are now confronted by shortages of raw material and factory labor that will begin to be manifest in shortage of certain lines of farm machinery this fall and will result in serious shortages in many vital lines next year. Stocks on hand in important kinds of tools and machines are smaller than for a long while, because of earlier scarcity of factory labor and a rapidly tightening scarcity of nearly all raw materials. Present and prospective conditions as to both elements make it certain that the shortage of our output will soon be serious.

"Farmers have deferred during the last three years the replacing of old and badly worn tools and machines. Now, confronted by the practical certainty that the war is to continue indefinitely, with attendant assurance of a heavy demand and high prices for all their products, and with an inevitable shortage of farm labor, they cannot put off longer replacements of worn-out machines and the additions to equipment necessary to increase acreage and production.

"It is also essential to meeting the demand of the farmers for implements that there shall be preference in transportation for raw materials to the factories and for finished goods from the factories to the farm.

"For the last ten years farm labor has been more and more difficult to secure. Now, when nobody can say how many millions of our young men are about to be withdrawn from production for military service, and with an enormous increase in the demand for labor in munitions factories, there is bound to be such a shortage of farm labor as this country has never known. In Kansas alone a vast number of fertile acres on which the wheat crop failed will lie idle this summer, chiefly for lack of labor and partly through lack of machines to re-plant to corn.

"We regard it as vital to keep on the farms the men now there who know the business, especially the men trained in the use of labor-saving machinery. It would be wasteful and foolish to let them go and afterward try to replace them with unskilled men.

"We seek no advantage for our industry over any other, but we realize and we want the public to realize, that without this product and without sufficient labor the farmers of the United States cannot increase or even maintain their production of foodstuffs next year. To avert the calamity that such a condition would surely produce, our industry and the farming industry which it chiefly supports must be put upon the same preferred basis as the making of war munitions, even if other less vital industries suffer thereby for materials and men. It is as important to fill the soldier's stomach as his cartridge box.

"These are the measures that we declare to be vital to the feeding of this nation and its allies next year:

"1. That the manufacturer of farm materials be given equal preference as to supplies of necessary raw materials with the making of war munitions.

"2. That service to the country in farm machinery factories be considered as of equal importance with service in munition making plants, Government or private.

"3. That labor on the farms be considered as of equal importance with the production of war munitions.

"4. That the raw materials for farming machinery and the finished goods be given equal preference by the transportation agencies of the country with munitions of war.

"These measures must be taken immediately to be effective, because the use and demand for farming machinery are seasonal. We must have right now materials and men to make the farm machinery that the farmer must use this fall and next spring. Delay in action will be as disastrous as failure to act at all."

Marketing Apples

It is not too early for apple growers to formulate plans for marketing the crop of the present season, in the opinion of the horticulturist at Pennsylvania State College.

Marketing plans should comprehend picking methods, grading and sizing methods, kind or kinds of packages to use, types of pack if box packages are contemplated, shipping methods and facilities, storage and methods of marketing the fruit to the best advantage.

The time of picking apples varies considerably with the variety. In any case, however, fruit should be mature before any picking is done. Time of picking should be determined in part, also, by the use to which the fruit is put.

Grading and sizing may be done by machinery. Some form of grading is necessary to realize the highest profit. Through proper grading one New York firm received two years ago a minimum of $3.56 a barrel for its fruit and as high as $6 a barrel for the best grades. One experiment in honest grading and packing is usually sufficient to convince any grower of the policy of the practice.

The advantages of the various types of storage and the type best suited to his conditions must be determined by the individual. For the commercial grower iced storage is by far the best. For the average farmer or the man catering to a small market, a different form of storage is essential.

The co-operative plan of marketing apples has been very successful in some sections.

Extension Circular 50 of the Pennsylvania State College school of agriculture and experiment station contains valuable information on harvesting, grading, packing and marketing apples and may be obtained free on request.

Dry Weather Orchard Hints

Mow the tall weeds and summer grasses in the orchard, allowing them to lie as a mulch under the trees.

Apples color and mature better, especially on the lower limbs, if the growth under the trees is mowed down.

Green weeds and summer grasses exhaust moisture from the orchard soil in a dry time; a mulch on the ground saves soil moisture.

Fruit buyers pay better prices for apples in clean orchards; they can see the fruit. Its quality shows up. It looks easy to handle.

Apple picking is made easier if the weeds are mowed in the orchard and the place kept clean. Pickers are disgruntled and do poor work where they have to wade through weeds and briars wet with dew or autumn rains.

The grower who gets into his orchard now sees anything else which is the matter with his orchard, has his attention called to anything which needs to be done to improve it, and learns a good lesson for next years operations.

Dead limbs take a great deal of water from growing apple trees. They are in the way at gathering time and make the whole crop look diseased. If caused by canker, the disease will spread to other parts of the orchard. Prune them out now and paint the wounds.

Water sprouts and surplus limbs take too much water from the trees in time of drought; prune out those which are not needed on the tree and save the water for the ripening fruit; fruit won't mature well where shaded by sprouts. The crop shows up better where the tree is kept pruned, admitting sunlight and air, and enables the buyer to see the fruit better. These statements are not guesses or mere opinions. They are some of the things that have been proved by careful tests at the Missouri Agricultural Experiment Station.

Unsprayed apple orchards are not the profitable ones. Owners of small orchards can co-operate in spraying operations.

Treating Seed Wheat with Formalin

The ravages of smut in wheat costs hundreds of thousands of dollars annually. According to the department of farm crops of the University of Missouri, practical tests have repeatedly proved that smut may be controlled and the yield of wheat invariably increased by treating the seed. The method of treating seed for smut is simple, easy and cheap, costing only a few cents to treat enough seed for an acre. Briefly, the treatment consists in stirring a pint of formalin into 30 or 40 gallons of water, thoroughly wetting the seed wheat with the solution and then drying it so that it will run through the grain drill. Some persons prefer dipping the seed into the solution, others prefer sprinkling the solution on the seed. Whether the seed is dipped or sprinkled makes no difference provided it is thoroughly wet with the solution.

Badger Farmer Gives Philosophy of Labor

One of the busiest and most practical of Wisconsin farmers has found time, in the midst of the most driving stress of farm work he has ever known, to write for his experiment station at Madison, his well-tried philosophy of every-day labor.

The "great thing" to consider, this food-maker observes, "is to get everything done at the right time and keep the odd jobs out of the way of field work."

Some other interesting conclusions which he has "doped out" for his fellow farmers to think over in spare moments during Sundays and rainy periods are:

"The best farmer is the one who gets the other work out of the way and keeps the teams moving whenever the land is in condition for field work.

"Plan no wet-land work when there is work in the field which can be done.

"Leave no rainy-day work to be done when it is not raining, for in this climate our profits are limited by the amount of outdoor work we get done.

"We farmers work with nature and must keep pace with her if we are to expect good crops.

"In rush seasons we put in long days, expecting to ease up on rainy days or when the rush is over. At these rush times we follow the rule, 'Do nothing today which can as well be put off until tomorrow.'

"The rule I try to follow when there is no rush work to be done is found in the old phrase, 'Put off nothing until tomorrow which can be done today.'"

State forests with a total of over 3,600,000 acres have been established in thirteen states. Of these New York has the largest forests, which comprise 1,826,000 acres; Pennsylvania is second with 1,008,000 acres, and Wisconsin third with 400,000 acres.

Every American Citizen Should Show His Colors!

Patriotism **counts** these days and every home should display the flag. We are fortunate in having secured a **limited** supply of beautiful American flags 3x5 feet in size, made of specially prepared soft bunting. The stripes are sewed with double thread. The colors are weather, sun and moth proof. It is a flag we absolutely guarantee.

We will send free (postpaid)—while they last—one of these handsome flags to any one who will send us three new 1-year subscriptions at 50c. each.

Considering the present scarcity and very high price of flags this is a GREAT BARGAIN.

The Practical Farmer, P. O. Box 1321, Philadelphia, Pa.

The Editor's Book Review

Below are comments on some of the more recent books which have come to the editor's desk from their publishers. The modern farmer is a reading farmer of course, and like other business men we believe our farmers are building up libraries by the occasional purchase of books on farm subjects in which they are interested; in no other way can a farmer improve so rapidly or substantially in his chosen calling as by reading the best in farm papers and books and preserving for reference the written accounts of the experiences of others.

For our readers convenience, we will be pleased to furnish at the publishers prices any of the books reviewed below, or any other obtainable books on farming. Further, we will be glad to give suggestions regarding books on any given farm subject on receipt of request with stamp for reply.—The Editor.

HOME LABOR SAVING DEVICES, by Rhea C. Scott, District Agent for Home Demonstration in Virginia. (119 pages, profusely illustrated, J. B. Lippincott Co., Philadelphia, $1 net.)

For the women and girls of the farm this book offers wonderful opportunities. Numerous ideas for kitchen and dining room conveniences are described and illustrated in detail, as well as various dairy and poultry devices. The book has been written for those who like to "make things" and will be found useful in schools having courses in manual training, as well as in any home which wants to make work easier for the home makers.

ITALY AT WAR AND THE ALLIES IN THE WEST, by E. Alexander Powell. (Charles Scribner's Sons, New York, $1.50 net.)

For the most part we review in these columns only strictly agricultural books, but occasionally a volume of another sort comes to our desk which we think we should recommend to our readers' attention. Such a book is this. So far as we know no other volume has been published which contains so many surprising and interesting facts concerning the great war in Europe that are little known to the rank and file of us. How many of our readers know that the Italian front is longer than the French, British and Belgian fronts combined; that some Italian positions are only to be reached by baskets slung on wires; that at some points Austrian and Italian trenches are only 6 feet apart; that the French have seven thousand æroplanes in commission? These are only a few of the remarkable things that Mr. Powell tells us in an interesting and graphic style. We hear much about the warfare of France and Belgium, and considerable about the Russian front, but very little has been written concerning Italy's part in the war; Mr. Powell devotes about half of the book to the story of the heroic and wonderful work that Italy is doing, and then fills out his volume with chapters concerning the accomplishments of the British, French and Belgian armies in their respective positions at the front. The whole book is absorbingly interesting and gives its readers a new point of view concerning the conduct of the great war.

PRODUCTIVE PLANT HUSBANDRY, by Kary C. Davis. (J. B. Lippincott Co., Philadelphia, 454 pages, illustrated, $1.75 net.)

This is the first volume of a new series of textbooks to be known as Farm Life Text Series. The author wa the editor of the famous Lippincottt's Farm Manual Series, and his new book is up to his high standard for thoroughness and practicality. It is intended primarily for school use and should be covered during one school year, but it also will be a valuable addition to any farm library, as it not only considers the subjects of plant breeding, propagation, etc., but has fifteen chapters devoted to specific crops. At the end of each chapter there is a series of field and laboratory exercises and questions, making it an excellent book for home study.

BUSH FRUITS, by Fred W. Card. (395 pages, illustrated, The Macmillan Co., New York, $1.75.)

This is a new and revised edition of one of the Rural Science Series edited by L. H. Bailey. This book covers the subject of bush fruits very thoroughly and is regarded as a standard in its line. The chapters on insects and diseases were prepared by specialists and all the information which it contains has been brought up to date. For the grower it contains lots of valuable information and no horticultural library should be considered complete without it.

A Warm, Sunny and Sanitary Winter Hog House

With pork selling at present prices it will be worth while to properly care for the coming litters. Good profits may be made out of fall pigs if they have dry and comfortable quarters, so they can be kept growing from start to finish. This hollow tile house meets all requirements.

REVIEW AND ALBUM 1916. (International Livestock Exposition, Union Stock Yards, Chicago, 250 pages, illustrated, 50 cents.)

As its name indicates, this is a complete record of the 1916 "International" at Chicago, and should be in the library of every live stock owner. It illustrates numerous prize winners and gives all the awards in every contest, besides a short history of the exposition.

THE MODERN GAS TRACTOR, by Victor W. Page. (The Norman W. Henley Publishing Co., New York, 480 pages, illustrated, $2 net.)

As each year sees the influence of mechanical power rapidly increase on the farm it is becoming essential that the farm library must contain books of this character. This book is a complete treatise describing all types and sizes of gasoline, kerosene and oil tractors and at the same time is written in such a style that any one of average intelligence can understand it. Two hundred and four illustrations help to make many difficult points clear.

THE RURAL SCHOOL FROM WITHIN, by Marion G. Kirkpatrick. (J. B. Lippincott Co., Philadelphia, 303 pages, $1.28 net.)

Here is a book about one of the greatest country problems by a man who has really lived what he writes. The author had a rural school education and has spent nearly a quarter century teaching in and adjacent to the rural schools. The book is in story form and contains many excellent ideas which can be used to advantage in any country school or community.

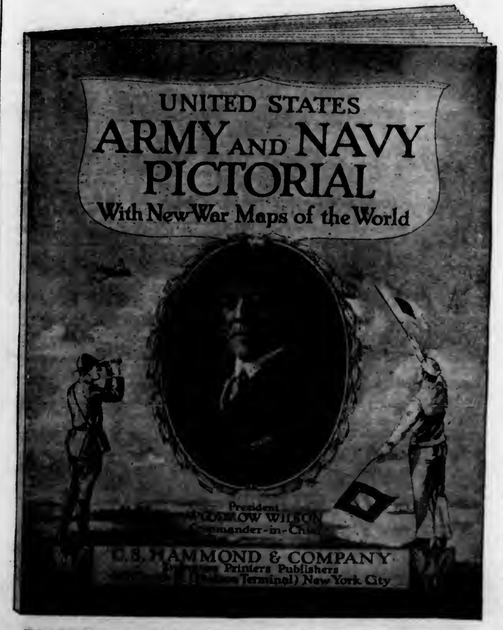
THE PRUNING MANUAL, by L. H. Bailey. (The Macmillan Co., New York, 400 pages, illustrated, $2 net.)

This is the eighteenth revised and enlarged edition of this popular book, first published nineteen years ago. Its completeness, clearness and up-to-dateness are best attested by these facts and no library is complete on horticultural subjects unless it is included. It is especially strong on vineyard pruning.

THE CULTURE AND DISEASES OF THE SWEET PEA, by J. J. Taubenhaus. (223 pages, illustrated, E. P. Dutton, New York City, $2 net.)

To lovers of sweet peas, and that includes nearly all of us, this book has a special appeal. The amateur, the gardener, the florist and the seedsman will be well repaid by the practical information which it contains, while to the student of plant pathology the chapters on diseases, which are the results of five years research work by the author, open a subject which has had little attention.

More and More Every Day You Need This



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As our own boys are entering the war our interest in the whereabouts of every battle and the geography of the firing line and training camps increases with leaps and bounds. You simply must have a good atlas to read the war news intelligently—and we've got just what you need.

Here's Our Offer—Read it Carefully

We will send without one cent of expense to any of our subscribers in **Pennsylvania, New York, New Jersey, Delaware, Maryland, Virginia and West Virginia** (we are obliged, because of limited supply, to confine our offer to these seven states) who will fill out and mail the coupon below (*at once*), this splendid Pictorial Atlas of the World War containing

16 Big Three-Color Maps and 37 Fine Army and Navy Pictures

The maps are accurate, handsome, and just what you need to show you exactly how and where our boys are fighting. The new war ships, aeroplanes, big guns, etc., are graphically pictured. The book is one you will need every day so long as this war lasts.

All we ask in return is a slight favor—a favor we know you are willing to grant The Practical Farmer and that will help your neighbor as well as yourself. Surely there is at least one farmer in your community who is not a reader of The Practical Farmer and we ask you to help us reach him.

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Positive force grain, grass seed and fertilizer feeds are accurate to the last degree. Lifting lever, levers regulating quantities of grain and fertilizer and acre measure are within easy reach in the rear. Drills built in sizes 6 to 12 openers, both fertilizer and plain. Pin Hoe, Spring Hoe or Single Disc Openers with spring pressure attachment to hold at uniform depth.

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Making Ready for Wheat

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We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1225, AUG. 15.—Which have you found the best way to get a field in grass, sowing it alone or with winter grain? What kind of seed do you use, how much per acre, when and how do you sow it? When and how do you fertilize your hay crop?

TOPIC No. 1226, SEPT. 1.—Winter storage of root crops. Tell us in not more than 250 words how you save and protect vegetables for later use. You can tell how you save beets, pumpkins, etc., for the live stock, or turnips, potatoes, etc., for home consumption or the market.

TOPIC No. 1227, SEPT. 15.—What use have you made of steel and concrete in your cow stable? How much have you spent for these two materials, and do you think it was a profitable investment. How many cows do you have? Did you remodel your old cow stable or build a new one?

G. H. D., Warrenton, Va.—The local custom in my section is to follow corn in the rotation with wheat, the small grain being seeded on the stubble fields. I have found the increased yield consequent on plowing for wheat is not proportionate to the extra expense involved in this work. I find it is more profitable to devote my summer plowing to the preparation of a seedbed either for alfalfa or mixed grasses.

I operate a double-action disk harrow once over corn stubble, lapping one-half; follow it with a right-angled working with a spring-tooth harrow and the field is in excellent order for planting with a disk grain drill, which farther perfects the seedbed by its pulverizing action. One reason why my corn land requires little preparation for wheat is because I continue working the crop even after the ears are developed, with 1-horse harrow cultivators in order to keep the soil well mulched and in tilthy condition. This practice, together with the shading effect of the corn, conserves soil moisture.

I always like to follow the grain drill with a pulverizing roller, one of the most useful implements available for the farmer, because it promotes capillary action and brings low-level moisture to a point near the surface, where its presence favors rapid germination, while the mulching action of the roller prevents the formation of a surface crust and conditions which will favor surface evaporation. If a pulverizing roller is not available an ordinary iron or wooden roller should be used, followed by a scratch harrow.

Wheat yields can be increased by sowing early enough to promote a heavy growth which will weather the winter, and late enough to avoid evil effects of the Hessian fly. A more thorough preparation of the seedbed will make for better yields. Wheat likes a seedbed which is mellow for 2 or 3 inches at the surface and well firmed and compacted below this point. Depth of seeding, with respect to season, is also important. In dry weather it pays to plant deeper than when the indications promise early rain and conditions favorable for quick germination. The man who owns a straw spreader and has the straw to spare will realize fine returns from top-dressing his wheat with straw, particularly in sections where bare winters predominate and where the small grain is exposed to alternate freezes and thaws, which induce winter-killing.

L. H. H., Weedsport, N. Y. — For plowing and fitting wheat ground I use a two-way plow, cutaway harrow, spring-tooth harrow, roller and drill. I follow oats with wheat, plowing the stubble under. Have never tried disking before plowing. I plow 7 or 8 inches deep; roll and harrow what was plowed the day previous, to prevent the ground from drying out and lumping. After the ground is all plowed I roll and harrow alternately, using both the spring-tooth and cutaway harrows, going over the piece every few days, until time to sow, to get the ground fine and firm.

Too many do not use the roller enough to get a firm seedbed. A disk or cutaway harrow will help wonderfully if the ground is lumpy. These tools will do more to increase the wheat crop than any I know of by making a fine, firm seedbed. As tillage is manure, one cannot use them too much.

The land should be thoroughly tile drained if it does not drain naturally. Wheat will not do well in wet land. Some of my neighbors claim to get better yields by sowing three bushels of seed per acre. They sow 1½ bushels each way. I shall sow part of mine this way as an experiment.

For Best Results Wheat Demands a Fine, Firm, Seed Bed

This new farm implement not only compacts and pulverizes the soil, but can be used for a variety of other purposes

E. J. J., State College, Pa.—Thorough preparation of the ground before planting I consider a necessity for wheat. I aim to get the soil as fine and in as mellow condition as possible, so that a good root growth can be made in the fall. For wheat I adhere to fallow plowing. The latter part of June I make the first plowing to a depth of 6 or 7 inches. The second and last plowing is made shallower, about 5 inches. As the wheat does not send roots down deep into the soil I find it more necessary to have the soil fine to that depth rather than plowed deeply and left in a lumpy, cloddy condition. After each plowing I harrow the ground thoroughly several times, and the last time disk thoroughly. For no other crop is disking more important. I always roll after planting, and unless the soil is very heavy and moist at the time of seeding I think it is absolutely necessary to secure good germination.

I like to get my wheat sown in time to have it make a good growth both as to root and stalk before freezing weather, for I find it "winters" much better when it does so. However, the seeding can be done too early, as we must remember that wheat is a cool weather crop. From the 10th to 15th of September is about right for the climate here.

The plow, harrow, disker, roller and drill are the entire equipment I use for planting this crop, but I believe in using them thoroughly. Aside from good seed and fertilizer, the greatest factors I have found for a good crop are, thoroughly prepared soil and moderately early planting. Get the ground ready in plenty of time so that you can take advantage of good weather conditions when they are available. A little foresight in this matter may mean extra bushels in your granary the following season.

A. J. L., Albion, W. Va.—If a sod or stubble land is to be prepared for wheat it is first plowed about 5 inches deep with a 2-horse turning plow as early as it can be done after the summer crops are harvested, then thoroughly disked and allowed to lie until the latter part of September. The early plowing allows the ground to settle and gives time for plant food to become available without being used up by weeds. The wheat is drilled in with a 2-horse drill; 5 pecks of seed and 200 pounds of a 16 per cent. acid phosphate per acre are generally used. If corn stubble is used for the wheat I disk the land thoroughly as soon as the corn comes off, and sow the wheat as early as I can, using seed and fertilizer as above. I do not roll the land, but prefer to leave it a little rough on top. The furrows made by the drill help to protect the wheat from the winter freezes. Thorough pulverizing of the surface and careful seeding do much toward insuring a good wheat crop.

E. A. W., Street, Md.—I like to plow for wheat as deep as condition of land will allow; that is, not turn up too much of the subsoil. Disking before plowing is all right for the heavy soils, but would not pay on our light soils. The plowing should be finished not less than thirty days before seeding time, and what is plowed each day, should be rolled, or scrubbed, the same day plowed, and harrowed once not later than the following morning.

After plowing is finished, cross disk or cross harrow and roll each time a thin crust forms, right up to seeding; this puts it in perfect condition, mellow, fine and well packed.

This season a neighbor remarked the immense difference in two fields of wheat that had been seeded the same day and treated alike in every way except that the good field had been plowed about three weeks earlier than the poor field. And what may surprise a good many is that a light soil needs to be plowed even earlier than a heavy soil. That is because it takes more time for a light soil to pack sufficiently; and, of course, it takes more rolling and scrubbing. My experience has proved that, except on very heavy soils, it pays best to leave the plow in the shed and to prepare the cowpea and corn stubbles and the potato, tomato, tobacco and truck patches entirely with the disk, the harrow and the roller or scrub, because it is almost impossible to plow after such crops and have the plowing finished long enough (30 days) before proper seeding time—and I have found that seeding done before October 1st usually produces best. When there is much danger from "fly" it is necessary to wait until later and then force quick growth with nitrate of soda.

I like to roll level land after seeding to keep water from collecting in drills and smothering plants in winter. In spring I like to roll to press earth about roots the winter has thrown out; then a little later, when surface dries and crust forms, I like to run over it with smoothing harrow, or even a weeder heavy enough to scratch up a mulch.

W. A. G., Vincennes, Ind.—I will briefly tell how I want to manage the wheat land this summer for the fall sowing of wheat. I like some wheat sowed in corn ground, and the remainder on ground that has been broken. It is very important that both kinds of ground be smooth, mellow and capable of retaining the moisture. Also that the under soil be well packed. I want the seed drilled in at a uniform depth of 3 inches, and from the first to the middle of September.

The corn being checked, after it is laid by, or as long as the crop stands up, I want the 1-horse 5-hoed cultivator run shallow between the rows every two or three weeks until time to drill in the wheat. The ground that is broken I want plowed some 6 inches deep. If it is possible, I want the plowing done by the first of August. This gives it time to pack and allows the trash and weeds turned under to rot. About every three weeks I want the spike-tooth harrow run over the surface. This works the soil to a mellow, clean condition, and causes an abundance of moisture in the packed subsoil at drilling time. If the early fall is very dry, both the corn ground and that which is plowed will retain enough moisture to bring up the seed, if both are treated as I have explained. I believe there is as much, or more, necessity for an early, well prepared seedbed as of any other consideration, and generally there can be no good start for a wheat crop in the fall unless on ground made ready as described, and some time previous to the time of drilling in the seed.

Mr. Wheat Grower—

Plan early for fall seeding—carefully prepare seedbed—arrange for fertilizer—*sow good seed wheat of the right variety—sow*

"Hoffman's Seed Wheat"

Grown in famous Lancaster Wheat Belt—known in every section for its hardiness — vitality — productiveness. Is reliable—means increased yields wherever taken to be sown.

Eight varieties—smooth and bearded sorts—graded—sound cleaned clean — *free of rye, cockle, garlic, chess, smut.*

Shown here is the *head of "Lean's Prolific" variety*—yielding 35 to 48 bushels per acre.

Seed must please you. Sold on Money Back Plan. Costs only 30c to $1 per acre to change to "Hoffman's Seed."

"Hoffman's Wheat Book"

Describes varieties — tells "How to Get a Crop of Wheat"—offers other farm seeds. It is free—with samples—if you tell where you saw this offer. *Write for it today.*

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Mr. Jarrett wrote: "My famous crop was 70 acres, which averaged 49 bu. per acre. It was worth more than the land it grew on."

More farmers are interested in making their land do double duty this year than ever before. It will cost you less to sow this new variety of large yielding wheat than to use common wheat from the granary. It's a fact! You can sell the wheat you intended to sow, and with part of the money received buy this heavy yielder to sow the same acreage. "I grew 108 bu. of wheat from 1 bu. sown," says J. H. Nyberg. Mr. Austill estimated his 8-acre field would produce 500 bu. If you grow winter wheat you owe it to yourself to get full particulars and copies of hundreds of letters from growers—many from your own state. Whether you grow a few or many acres, it will pay you to investigate—and it doesn't cost you a cent.

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Without obligation on my part, send me full particulars of the new wheat, together with photos of fields and hundreds of letters from growers. Also how I can sow it at less cost than to use common wheat.

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Plowing With Light Farm Tractors

(Concluded from page 265)

With a week's training I believe that the farm hand could have operated a tractor satisfactorily. What sort of a "fist" would any of these tractor men have showed at plowing with horses the first week he ever tried them? I have seen some "fancy work" of that kind; I believe that I know how the plowing would look.

Besides pulling plows and other farming tools the greater part of these tractors were equipped with belt wheels for operating threshing machines, fodder shredders, silage cutters, and so on. All of them should have been; no farm tractor is worth storage space unless it is fitted to do more than drag tillage tools after it. Power is one of the farm essentials these days. When stormy or rainy days come the thinking, planning farmer always has something set aside that he can do to advantage at those times. When he has sufficient power at hand it is an easy matter to thresh grain, shell corn, cut feed, bale hay, saw wood, and so on. He can accomplish good, effective results with time and labor that he must pay for, but which would otherwise be wasted.

The best farmer is the man who thinks out his work in advance of the time it must be done, and plans to get the best results at the least cost. To such the efficient farm tractor will appeal strongly. He cannot afford to be without one for a day after he is able to get it.

Maryland.

National Tractor Demonstration

That American manufacturers of gasoline farm tractors will produce probably 50,000 tractors this year as compared with the demand for 100,000 or more, gives special interest to the annual demonstration of tractors which will be held at Fremont, Neb., August 6-10. Last year American manufacturers produced 39,000 tractors. This year they hoped to have built 70,000, but the shortage of labor and materials and lack of standardization has cut this figure to a possible 50,000. It is estimated that there is a possible field for a million of these tractors in this country. Production is as essential in farm tractors as with aviation.

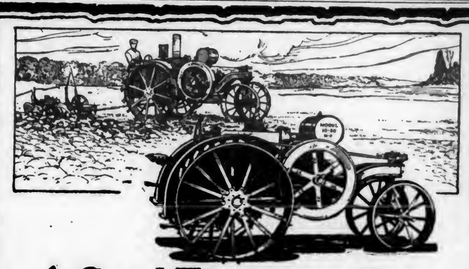
At Fremont over 250 farm tractors will demonstrate each day, these representing the majority of the tractor manufacturers. Many thousand acres of land have been secured for the demonstration, and from morning until night these machines will be proving their ability to plow and do every kind of farm work.

This national tractor week will be the occasion of a great meeting of tractor engineers and manufacturers at which problems of greater tractor production as made necessary by the war will be paramount.

Great Britain found it necessary to standardize farm tractor construction and America faces the same problem. The Society of Automotive Engineers, which embraces in its membership engineers representing such industries as automobiles, motor trucks, farm tractors, airplanes, motorcycles, motorboats and stationary gas engines, started this work of tractor standardization last spring and is vigorously carrying it on at present. Tractor manufacturers are requesting methods for the standardization of parts so that production to meet the demands will be possible. The Society of Automotive Engineers was entirely responsible for standardization work in connection with American automobiles, and made a world's name for itself in this field. Its engineers are now standardizing aviation motors and planes. It is working similarly with regard to farm tractors, and through this source it will be possible to bring tractor production up to the figures necessary.

The S. A. E. engineers are also working with the tractor fuel problem, which will be discussed at Fremont on Wednesday, August 8th. Kerosene has generally been accepted as a satisfactory tractor fuel, but many manufacturers declare it is not so efficient as gasoline and that there is greater economy in using gasoline notwithstanding the higher price. Experts in engine design and others in carburetion, as well as chemists for fuel manufacturers, are expected to reveal some interesting facts in this fuel controversy.

Over one-third of the wheat grown annually in Pennsylvania comes from the six great agricultural counties, Lancaster, York, Franklin, Berks, Cumberland and Chester.



A Good Tractor to Own

A MOGUL 10-20 kerosene tractor will go a long way toward solving your labor and expense problems. Men who use this tractor properly say it does as much plowing, disking and harrowing in rush seasons as three men and nine horses. In the heat of the harvest fields, and for summer plowing, three four-horse teams can hardly keep up with it, because it works steadily all day long.

Besides, it is so simple that almost anyone can learn to handle it efficiently. A few days' training in the handling of a kerosene engine is usually all that is needed.

These two features make the **Mogul 10-20** highly desirable. Add to them the fact that it operates on a fuel that you can always buy, and at a reasonable price, and you have a power plant that is hard to beat for all-the-year-round work in the field or at the belt.

You know the standing and reputation of Mogul tractors. When you buy a tractor, don't overlook this good, simple, reliable, economical three-plow **Mogul 10-20**. Booklets and folders give complete information. When you write for them, address

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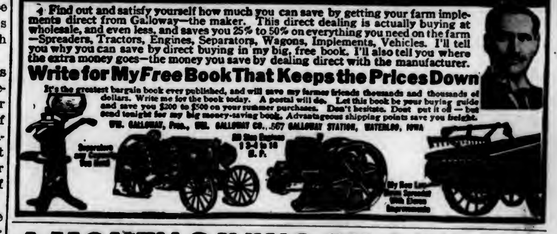

Find out and satisfy yourself how much you can save by getting your farm implements direct from Galloway—the maker. This direct dealing is actually buying at wholesale, and even less, and saves you 25% to 50% on everything you need on the farm—Spreaders, Tractors, Engines, Separators, Wagons, Implements, Vehicles. I'll tell you why you can save by direct buying in my big, free book. I'll also tell you where the extra money goes—the money you save by dealing direct with the manufacturer.

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Here is the Ensilage Cutter you want—a "money saver" because a "good silage maker." Don't experiment—don't expect macerated long-length corn stalks and chunks of corn to make good ensilage—it can't be done. Get a Ross and do it right. Catalog on request.

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The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

AUGUST 15.—Have you made any changes in your family baking since wheat flour has advanced in price? Have you had any success using rye or graham flour? How do you make your best bread?

SEPTEMBER 1.—How do you make coffee? What variety of coffee do you buy, what price do you find it necessary to pay for satisfactory coffee and what suggestions can you give our readers who are dissatisfied with their cup of coffee, to improve upon it?

SEPTEMBER 15.—Economical griddle cakes will be popular this year. How do you make good ones out of corn meal, rice, etc.? Don't confine yourself to what we can find in any cook book, but give us some ideas which will be helpful to other housewives. What do you find best to serve over them?

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

Cooking Squash, Cucumbers and Carrots

Mrs. I. L. M., Salix, Pa.—I want to tell how to make a delicious squash or pumpkin butter which is equal to new apple or pear butter. Peel and cut up in inch cubes any good squash or sweet pumpkin (a few sour apples may be added if on hand; if none are to be had the butter may be made without them), stew in water until soft, then mash up, sweeten to taste, spice with ground cinnamon; add enough boiled down cider to give it the color of weak apple butter, boil until thick and you will have a spread that will be very welcome on the table, especially when apples are scarce for apple butter. If you make the butter in an earthen bowl instead of a granite kettle you will need to stir only occasionally. Just use enough water to stew pumpkin soft.

If you grow Fordhook squash, take the squashes while seeds are yet small, peel and slice in thin rounds, sprinkle with salt a few hours before using, then roll in flour and fry a nice brown and you will find them as nice as eggplant.

To use same kind of squash when riper, peel and stew in just enough water to boil away until squash is tender, mash and add a bit of salt and sugar, a few spoonfuls of cream and a lump of butter, and you have a fine sauce.

Again use the Fordhook squash, follow directions and you will have a pumkin pie entirely different from the kind your neighbor bakes, and one that is sometimes taken for a maple sugar pie. Peel and stew squash in just enough water to boil dry; add a pinch of salt, nutmeg and ginger; add a tablespoonful of flour for each pie and a teaspoonful of maple flavoring for each one. Use enough milk and cream to make as thin as an egg custard. Sweeten to taste and use no eggs, as they will not be necessary. See if you don't like it. Bake in an under crust only. Do not bake crust beforehand.

Mrs. E. D. S., Hepburnville, Pa.—The following receipts are favorites with us:

CUCUMBER SALAD.—Take four large cucumbers and one small onion and slice thin on a cabbage cutter. Salt well with 1 tablespoonful of salt and let stand one-half hour, then drain off all the juice. Mix together 2 tablespoonfuls of sour cream and ½ cup of vinegar, then mix this with the cucumbers and sprinkle pepper over top for seasoning.

FRIED SQUASH.—Take the squash before the seeds become hard, peel and slice about ½ inch thick without removing the seed and sprinkle each slice with a little salt and let stand about 15 minutes. Then dredge with flour and fry brown in butter and lard.

CARROTS AND BACON.—Slice carrots on a cabbage cutter, enough to make 2 quarts, and take about ¼ pound of bacon and cut up fine and boil together until the carrots are soft. Season with salt and pepper and serve hot.

Mrs. C. R., Mullica Hill, N. J.—When some of the cucumbers have become big and yellow I gather them and pare, take out seeds, cut them in strips about 2 inches long, salt well and let them stand over night. In the morning take 2 cups water, a cup of vinegar, 2 tablespoonfuls of sugar and 1 tablespoonful of mixed spices; boil together for five minutes and drop in as many of the salted cucumbers as you need for a jar, as more than a jar done at a time will turn dark. The cucumbers should boil until edges get transparent, which is about five minutes, then pack them in jars, filling the jar with the pickle. They must stand six weeks before used. They are yellow in color and delicious in taste.

From squash I often make squash fritters, which will take the place of meat. Grate 2 cups of squash after removing seeds and rind, and stir in a half cup of milk, 1 egg, pinch of salt, and enough flour to make thick batter. Beat well. Drop by spoonfuls in deep hot fat. Serve hot.

We are fond of fried carrots, which I make as follows: Clean the carrots by using a small scrubbing brush kept for vegetables. Boil in salted water until they are almost done; drain for a few minutes, cut in slices, dip in egg, salted, and then in flour; fry in hot fat. Serve garnished with parsley or cress.

J. W., Cordova, Md.—In using cucumbers I take medium large ones, before seeds are hard, pare them, commencing at blossom end to avoid bitterness, cut lengthwise into quarters, place in cold salt water a few moments and then eat with salt same as I use celery or onions.

I am now using the summer squash. I cut it in rather thin slices, salt each piece, lay on plate a few moments, dip in flour and fry in hot fat until brown on both sides.

Carrots I scrape, cut in slices, cook in salted water until tender, drain, cover with cream and milk or very rich milk, thicken with flour made smooth in a couple of tablespoonfuls of milk to one of flour; stir into carrots when boiling and serve.

Mrs. M. A. P., Newton, Kan.—Three unusual ways in which I prepare cucumbers for the table are as follows:

CUCUMBER AND TOMATO SALAD.—Arrange on a bed of lettuce leaves sliced tomatoes; pile on each slice cucumber cubes, cut about half an inch square. Serve with mayonnaise dressing.

FRIED CUCUMBERS.—Pare and slice well grown cucumbers a quarter of an inch thick, let soak in salt water for 20 minutes, drain and squeeze dry. Dip each slice first in beaten egg, seasoned with salt and pepper, then in grated bread crumbs and fry in boiling fat. Serve immediately.

CUCUMBER SANDWICHES. — Pare and slice very thin a large cucumber; sprinkle with salt and set on ice for 10 minutes. Drain and dip each slice in mayonnaise dressing. Butter thin slices of bread, lay the cucumber over, place a thin slice of cold boiled ham on each sandwich, cover with another slice of bread and serve. These are fine.

Miss I. E. B., Franklinville, N. Y.—Our family is very fond of carrots, and the following are some very appetizing ways of cooking them:

ESCALLOPED CARROTS AND POTATOES.—Take two-thirds as many carrots as potatoes, pare and slice thin, put a layer of carrots and half as many potatoes in a deep basin; sprinkle over them bits of butter, salt and pepper and a few bread crumbs, then another layer of carrots and potatoes, sprinkle with salt and pepper and bits of butter and a few bread crumbs, and repeat until the basin is full, having bread crumbs last; fill the dish with sweet milk and bake until well done.

CARROT PIE.—Two large cups of grated cooked carrot, 3 eggs (saving whites of 2 for meringue), 1 cup of sugar, a little salt and enough sweet milk to thin as you would for pumpkin pies. Beat yolks, add sugar, then cooked carrot, season with cinnamon and nutmeg, add salt and milk last. Bake with one crust. When done, cover with meringue and brown nicely. Tastes similar to pumpkin pie.

PICKLED CARROTS.—Pare very thin nice carrots, boil until tender in water with a little salt; when done, if carrots are large, slice lengthwise in four pieces, pack into glass jars and pour over them vinegar with some mixed spices and sweetened a little (some prefer more sugar than others), and boil a few minutes; seal hot.

Mrs. J. O. L., Cuba, N. Y. — Our family like carrots cooked in the following ways: I slice some salt pork as for frying, put water in kettle, add the pork and as many carrots, quartered, as needed, also onions; boil all until done. Serve with vinegar, each one to add it to suit their taste.

For creamed carrots I slice them fine, boil until tender, drain, add salt, some butter and a little milk, and just enough flour to thicken like cream; or vinegar may be used in place of milk; either is good.

Pickled carrots are fine. Cook whole in salted water until tender, then put in vinegar as beets are used. Mixed with beets for pickles gives each a nice flavor.

Miss P. Y., Mt. Pleasant, Pa.—For cream escalloped carrots take 3 large carrots, ½ teaspoonful of salt, dash of paprika, 1 cup of buttered bread crumbs and ½ cup of cream, or if milk be used add 1 tablespoonful of butter. Clean carrots, scrape and grate, all with the exception of the core; add the paprika and cream, or milk and butter; cook 20 minutes in a double boiler over boiling water; add salt. Place in individual baking dishes, sprinkle with grated cheese, cover with buttered bread crumbs and brown in a moderate oven.

For squash souffle I cut squash into pieces, remove seeds and stringy portion, and pare. Place in a steamer or strainer over boiling water for 30 minutes or until soft. Mash and season with 2 teaspoonfuls of butter, salt and pepper. To 2 cups of mashed and seasoned squash add gradually 1 cup of cream; when thoroughly blended add yolks of 2 eggs; beat until thick, add the beaten whites of two eggs; turn into a buttered pan and bake in a slow oven until firm.

To make cucumber and radish salad prepare the cucumbers by allowing them to stand in cold water for 30 minutes. Pare and dice. Place between cheesecloth directly upon ice. Prepare radishes same way. When ready to serve mix with a French dressing made as follows: 3 tablespoonfuls of olive oil, 1 tablespoonful of sugar, 1 teaspoonful of salt, ¼ teaspoonful cayenne pepper and 1 tablespoonful of vinegar. Mix all dry ingredients. Beat into dry ingredients the olive oil and then gradually the vinegar. This dressing should be thick and creamy, the oil being entirely emulsified.

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8367.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. The waist has drop shoulders and a surplice vest.

8372.—Girls' dress. Cut in sizes 8, 10, 12 and 14 years. The dress is cut in one piece, and has side pockets.

8396.—Misses' dress. Cut in sizes 16, 18 and 20 years. The dress is cut in one piece.

8398.—Children's dress. Cut in sizes 4, 6, 8 and 10 years. The dress is cut in one piece and has a separate guimpe.

8364.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. The waist is tucked at the front.

8359.—Ladies' house dress. Cut in sizes 36 to 44 inches bust measure. The dress has a three-gored gathered skirt.

8368.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in two gores.

8387.—Boys' suit. Cut in sizes 2, 4 and 6 years. The suit consists of a box-plaited jacket and straight trousers.

8391.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in four pieces.

8388.—Ladies' apron. Cut in sizes, 36, 40 and 44 inches bust measure. The apron is cut in one piece.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA

Canned Tomato Sauce or Puree

Since tomatoes contain a very high percentage of water, it often is desirable to can only concentrated tomato products. This is true especially when cans or jars are difficult to obtain. A delicious concentrated tomato sauce may be made and canned as follows, says the United States Department of Agriculture. Small or broken tomatoes and large tomatoes unsuitable for canning whole, may be used in this receipt.

Cut the tomatoes into fairly small pieces and add one large-sized onion chopped and one cup chopped sweet red pepper to one gallon tomatoes. Cook until tender. Put through a sieve and add a mixture of one-third salt and two-thirds sugar in a proportion of one teaspoonful to each quart of the mixture. Cook until the consistency of ketchup, stirring constantly. Pack hot into sterilized jars or bottles. Adjust rubber and cap—place the containers on a false bottom in a vessel of water sufficiently deep to reach almost to their tops and allow to remain at a boiling temperature for 25 minutes. Remove jars from the water bath and tighten the lids immediately.

Sealing Jelly Glasses

MRS. C. S. W.

A few days ago while making my currant jelly I discovered a new way to seal them. With a sharp knife I shaved some paraffine into the bottom of each clean glass. When it was ready I poured the hot jelly into the glass right on top of the paraffine. The heat, of course, melted it and caused it to rise to the top of the glass and completely seal it. When the jelly cooled it was ready to place in the preserve closet. The paraffine seems to be sticking around the edge of the glass better now than it does when I applied it the old way.

I always use the paraffine over and over again each year. If it should be soiled it can easily be washed in lukewarm water with a stiff brush. If it should happen to become very much soiled it can be heated until it smokes, and then strained through several thicknesses of cheesecloth.

Cool Drinks for Hot Days

Fruit juices make the best drinks.

Half a cup of lemon juice, six tablespoonfuls of syrup, and three cupfuls of cold water make a good lemonade.

Currant jelly dissolved in either hot or cold water makes an excellent drink. So do many other jellies.

Chilled blackberry or raspberry juice diluted to taste and served with or without a slice of lemon touches the spot.

Fruit lemonade is made by adding small pieces of sliced pineapple, orange, muskmelon, cherries and a sprig of mint leaves.

Use the lemon squeezer on oranges just as on lemons and pour the juice on finely cracked, artificial ice. This is an especially healthful drink, but like other iced drinks, should be swallowed slowly.

Grind a can of sliced pineapple in a small sausage grinder and mix it with two gallons of water. The sliced pineapple is bettter than that which is already grated, so the best results are obtained by buying the sliced article and using the food chopper.

Lemon egg nog is a good food as well as a drink. Make it by beating an egg yolk until it is lemon colored and thick. Then add a teaspoonful of sugar gradually and follow this with the stiffly beaten white of the egg. Add a tablespoonful of lemon juice and serve while cold.

These are suggestions from Carrie Pancoast at the Missouri College of Agriculture, where they have been repeatedly tested.

Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

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CHAPTER XVIII.

A STALLED ENGINE.

"Well, I don't expect to be any nearer flying till I get to Heaven and they fit me to a pair of wings. I might try a little jaunt in an air-ship some day, but I don't feel as if I'd relish that for a steady diet. For this world, an automobile is plenty good enough for me."

Not for many a year had Persis been possessed by such a sense of buoyancy and youthfulness. The road lay straight and smooth before her. The little car, obedient to her strong, capable hand, spun along the shining track, counterfeiting by the swiftness of its motion the breeze lacking in the languid spring day. Persis had laid aside her hat, and the rush of air ruffled her abundant hair and rouged her cheeks. As a matter of fact, Persis was not so near flying as she thought. In the most conservative community there would have been little danger of her arrest for exceeding the speed limit. But to one accustomed to the sedate jog-trot of farm horses taken from the plow to hitch to the capacious carry-all, the ten-mile-an-hour gait of the new motor seemed exhilarating flight.

The day had the deceptive stillness by which nature disguises the ferocious intensity of her springtime activities. Bird, beast and insensate clod all felt the challenge of the season. Persis had responded characteristically by cleaning house from six o'clock till noon and making a dress for Betty in the interval which less strenuous natures devote to afternoon naps. And now that Celia was off somewhere with Joel, and Betty had promised to look after the baby, and the boys had received permission to inspect a family of puppies newly arrived in the neighborhood, Persis was scurrying hither and thither with all the ebullient light-heartedness of a girl let out of school. She had startled the staid residents of Twin Rivers where the spectacle of a woman driving a car ranked in interest second only to a circus parade. She had frightened two horses and narrowly escaped running over a chicken. And now she turned her face homeward, with the deliberate intention of ignoring the approach of supper-time and inviting young Mrs. Thompson to take the baby out for an airing. At no other time of the year would Persis have considered being late to supper for no reason except that she was loath to shorten her pleasure. Without doubt the momentous interview between Mother Eve and the most subtle of beasts occurred in the spring when the moral defenses need reinforcement.

Against the deepening gold of the west, a black speck showed, emerging rapidly into distinctness as the vehicles approached. The slower-moving of the two was still at too great a distance for Persis to distinguish its occupants when she began to slow down, her dread of causing an accident through frightening some one's horse counteracting her unwonted feeling of irresponsibility. The car had come almost to a standstill when out of the recesses of the still distant buggy Persis caught a flash of pink. She had the trained eye for color characteristic of her profession. And this peculiarly trying shade of pink she always associated with Diantha Sinclair, who had an audacious fondness for testing her flawless coloring with hues capable of turning the ordinary complexion to saffron.

Prompt action is characteristic of the intuitive. Logic takes time. Persis never attempted to account for the unreasoning certainty which on occasion took command of her actions. It was impossible for her to recognize Diantha's companion or to know indeed, that the opalescent flash of pink stood for Diantha's nearness. Yet she was sure of both things and of much besides. And with her conviction that the case was serious, an adequate plan of action instantly presented itself.

The car stopped with a jerk, and in the middle of the road, so that the on-coming driver would have to exercise caution in passing. The panting engine became silent. Persis alighted. She made several tours of inspection of her property, her face expressive of gravest concern. Occasionally she touched a screw or lever tentatively and then shook her head. Finally dropping on her knees in the dust, she thrust her head between the wheels and gazed inquiringly at the bottom of the car. Thus occupied she was too engrossed to notice that the thud of horse's hoofs was coming very near. Suddenly the sound ceased.

"Why," cried a girlish voice, "It's Miss Persis."

Persis gave up her unavailing scrutiny and climbed slowly to her feet. As she dusted her knees she welcomed the occupants of the buggy with a fine blending of surprise and relief.

"Well, I venture to say I know just how shipwrecked folks feel when they're off on a raft in mid-ocean and they sight a sail. Ain't this a funny fix, half past four in the afternoon and me ten miles from home? And to make it worse I wrenched my knee a mite cleaning house this morning." This last statement was strictly accurate though her limp as she advanced toward them was exaggerated. "I don't know what I'd have done," declared Persis, if you hadn't happened along."

Diantha's face reflected the pinkness of the gown which had betrayed her. Thad West looked frankly sulky and quite at a loss.

"That's the worst of those dog-goned things," he exclaimed, scowling at the object blocking his way. "They're always giving out just when you need them most. I wouldn't take one as a gift," he added savagely, and only the enthusiastic motorist will understand what it cost Persis not to refute his words on the spot.

"Have you tried everything you can think of to make it go, Miss Persis?" Diantha asked, her troubled tones indicating how much she took to heart her friend's misadventure.

Persis' glance implied affectionate appreciation.

"Well, you see, dearie, they gave me lessons in the city on how to run a car, but I suppose it's too much to expect that I'll know everything about it right from the start. I dare say some real smart person could fix it in a jiffy." She was so certain on this point that she quaked for fear Thad might begin experimenting, but that young man's confidence in his mechanical ability was luckily limited. He sat scowling and twisting the lines in his hands, while his horse looked back over his shoulder as if it shared its master's impatience of the delay.

"I didn't relish the idea of setting here in the road all night," explained Persis, still with an air of relief. "Seems fairly providential your coming along in the nick o' time."

"Fact is," said Thad sullenly, "we're not going home for a while."

"Well, I'm in no real hurry," Persis returned obligingly. "If the children get hungry, Mary'll feed 'em. They're all too little to worry if I'm not home on the minute, and Joel ain't the worrying kind."

"Truth is, Miss Persis," exclaimed the goaded lad, "it isn't what you'd call convenient for us to take you along this evening."

"Thad!" cried Diantha in accents of unutterable reproach.

"Well, I don't mean to be impolite, but it's *not* convenient and you know it."

"Thad West, Miss Persis is just about my dearest friend in Clematis. And if you think I'm going to leave her here alone ten miles from home, with an automobile that won't go—and getting dark—and a lame knee—"

"Well, of course, if you feel that way about it," returned the unhappy young man, "there's nothing more to be said. But you know yourself—".

"I guess I'd better light my lamps before I leave," remarked Persis briskly. She attended to that little matter and hobbled toward the buggy. Thad alighted and assisted her to climb in with so poor a grace as to make her suspicions an absolute certainty.

"Now, children," Persis settled herself and slipping an arm deftly behind Thad's back, she took Diantha's slim hand in hers, "I never was one to be a kill-joy. You drive around as long as you feel like it and don't mind me, no more'n if I was a coach dog running on behind."

"Thad!" exclaimed Diantha in peremptory fashion. "I'm going to tell her."

"Just as you think best," replied young Mr. West, who bade fair to find this a convenient stock phrase.

Diantha's hand gave that of Persis a tremulous pressure, suggestive of fluttering nerves. "Miss Persis," she said in a thrilling half-whisper, "we're going to be married, Thad and I."

Persis returned the squeeze. "I thought as much, dearie. I've seen you look at him and him look at you, and that made it plain enough to a body with eyes. And I'm glad to hear it. For all I've missed it myself, I believe marriage is about the best thing there is. Thad's got his faults and you've got yours, and it stands to reason you're going to do better at mastering 'em if each helps the other, than if you struggle along alone. There's nothing easy about marriage except for lazy folks and cowards, but things that are hard are the only ones that pay. Some people will tell you it's a risk, and so it is, but most things are when you come to that. I believe in getting married and in early

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marriages, too, and so I'm glad to know that some day you and Thad—"

Thad West gave his horse a quite unnecessary cut with the whip. In the voice of a dying zephyr, Diantha interrupted.

"You don't understand, Miss Persis. It isn't some day. It's today. We're running off to be married."

"Oh!" Persis' hold on the fluttering little hand tightened. Her silence seemed to imply reflection.

"Well, that puts a different face on it. I suppose it's because I think so much of marriage that I hate to have it mixed up with things that are underhanded. My idea of husband and wife, you see, is just two folks helping each other to make a better man and a better woman, instead of backing each other up in lying—"

"Lying!" exploded Thad. "Who's going to do any lying?"

"Diantha's not eighteen yet, and you haven't got her parents' permission for her to marry you. The only way you can manage it is to lie about her age and start your new life with that hanging over you. And all because you can't wait one little year. Looks like Thad's afraid he will change his mind about Diantha, and Diantha's in a hurry for fear she will find somebody she likes better'n Thad."

Two vehement protests mingled in inextricable confusion. "They won't let me see her except on the sly," cried Thad, making himself heard at last. "They've said I wasn't to come to the house. And I won't stand it."

"Of course you won't," Persis agreed. "That's past all reason that two young people dead in love with each other aren't to have a chance to do their courting. That's got to be different."

"But father won't have it."

"Tomorrow I'm going to drop in and have a talk with your father. I'm not afraid of obstinacy in a man that's got ordinary sense somewhere in the back of his head. It's the brainless sort of folks that can't be moved after they've once got set. Stanley Sinclair knows enough to listen to reason. And he's got to do it."

"But mother," began Diantha, and then sobbed. His face sternly set, Thad gulped. Even the self-contained Persis found her eyes moist.

"Yes, child, I understand. I knew your mother before you were born, and I'll own that we're likely to have a little trouble in that quarter. But when folks have common sense and everything else dead against 'em, there's nothing for 'em to do but give up. Sometimes I've felt," Persis added thoughtfully, "as if I'd just enjoy a real plain talk with your mother."

"If we go back now," stormed Thad, "it'll be the same story over again next year. They're never going to let me marry Diantha unless I run off with her."

"Next year she'll be of age and her own mistress, and you'll have no cause to run. Diantha's the sort of girl that ought to be married in church with bridesmaids and the wedding march and pews full of folks looking on. 'Tain't only about once in a generation that a bride as pretty as Diantha comes along, and the idea of marrying her in some minister's back parlor, with the student lamp turned low to save oil and the servant girl called in for a witness, is a plain case of casting pearls before swine. Not that I've got anything against ministers," Persis added, in hasty amends to the cloth.

The weeping Diantha was sobbing less violently. Persis was sure she was giving close attention. Possibly Thad was impressed by the same view of the case, for he spoke with the aggressive confidence of one who feels that his cause is imperiled.

"Church wedding! Makes me laugh to think of what Diantha's mother would say to that."

"Well, if they won't give Diantha a wedding next year, I will. And it'll be the kind," Persis promised solemnly, "that'll make Clematis sit up and take notice."

Neither of the lovers spoke. Gazing down the winding road with the dreamy air of one who sees beautiful visions, Persis broke the tense silence.

"I've given up dressmaking for good, but there's one dress I'm willing to break my rule for, and that's Diantha Sinclair's wedding gown. I've got a picture of it in my mind's eye, if the styles don't change too much between now and next June. And if anything could make Diantha look sweeter than she does now, 'twould be that wedding dress. And the making of it ain't going to cost her a cent."

Diantha leaned behind Thad's back and left a damp kiss on her friend's forehead. Persis knew her battle was won. Thad knew it too, and a hollow groan escaped him.

"By the way, Thad, I'm going to arrange with Mr. Sinclair to let you call on Diantha twice a week, and if you should feel like seeing her between times, she's pretty likely to be at my house along in the afternoon. If you should drop in 'most any day about four o'clock, you'd probably find her. And now s'pose both of you come home with me for supper. I'll telephone Diantha's folks where she is, so they won't worry."

"I think—I think that'll be awfully nice, don't you, Thad?" said Diantha.

And the loser in the unequal contest surrendered without a blow as he answered, "Just as you say."

Persis had not overestimated her persuasive powers. She actually brought the Sinclairs to agree to the liberal terms she had promised the young people. The hauteur with which Stanley Sinclair received her at his office the following day, and the explicitness of his statement that he was not anxious for her advice concerning his domestic affairs, proved unavailing before Persis' matter-of-fact bluntness. Anger availed him little, since she remained cool. His irony rebounded harmless from her absolute certainty of being in the right. Forced to retreat step by step, he ended by conceding all that she demanded for the lovers. If he had an air when he bade her good morning, of resolving never to forgive her, the knowledge that she had gained all she came for imparted an unfeigned cordiality to her farewell.

The interview with Annabel was briefer and more dramatic, but quite as conclusive. As she pondered on the success that had attended her efforts, Persis indulged in brief philosophy.

"Anybody's at a terrible disadvantage that's afraid of the truth. Now, it doesn't worry me a mite to have Annabel to call me an old maid, but if I tell her she's thirty-eight she feels worse than if I'd stuck a knife into her. Annabel makes me think of those squirming things that live under stones. All you have to do to bring 'em to terms is to turn the stone over and let the light in on 'em. It beats all how Annabel will scramble to get away from the truth."

The man commissioned to bring home Persis Dale's car relished his task enormously. He told every one that there wasn't a thing the matter with the machine. She had just stalled her engine and didn't know enough to get it started again. All Clematis enjoyed the joke, Persis in particular.

(Continued next issue.)

Congressmen Debate, Farmers Cultivate

At Washington, our wise men sit and make the laws; or gaily flit from desk to desk, and place to place and smoke into each other's face. They like to joke as well as smoke, especially about the bloke who sows the seed and tills the land, who works and sweats to beat the band, that they may live and not go broke. The farmer raises pigs by work. The politician plays with pork; the farmer raises hay and beans, the other sits upon his jeans and wonders why in Halifax the farmer grumbles 'bout his tax. They think prosperity has come, because they're at the helm, by gum, and but for them we'd all go to smash upon the rocks of vanished cash. 'Tis true, we need these jolly souls to spend the wealth we pay in tolls, to tell us times are mighty good, to tell us how to raise more food, to keep us in a cheerful mood. Congress may meet to make the laws; we raise the stuff to fill their craws; they shout and spout and chew the rag, while we raise kale to fill the bag. Let's all keep step, keep up our pep, find the best ways our crops to raise, teach girls and boys the country's joys, make life worth while with sunny smile, feed Uncle Sam with eggs and ham and let the plutocrats go hang.—W. E. Vapion, Colorado College.

Agricultural Fairs During 1917

State Fairs

DATE	PLACE	STATE
Aug. 27-31	Columbus	Ohio
Sept. 3-7	Wheeling	Wset Virginia
Sept. 3-7	Wilmington	Delaware
Sept. 4-8	Lutherville	Maryland
Sept. 10-15	Syracuse	New York
Sept. 24-28	Trenton	New Jersey
Oct. 8-13	Richmond	Virginia

Pennsylvania

DATE	PLACE	COUNTY
Aug. 7-10	Altoona	Blair
Aug. 8-10	Stewartstown	York
Aug. 8-11	Apollo	Armstrong
Aug. 14-16	Imperial	Allegheny
Aug. 14-18	Pottstown	Montgomery
Aug. 21-23	Osterburg	Bedford
Aug. 21-24	Kutztown	Berks
Aug. 21-24	Butler	Butler
Aug. 21-24	Warren	Warren
Aug. 28-31	Arden	Washington
Aug. 28-31	No. Washington	Butler
Aug. 28-31	Lebanon	Lebanon
Aug. 29-Sept 1	West Chester	Chester
Sept. 3-7	Hanover	York
Sept. 3-7	Middletown	Dauphin
Sept. 3-8	Byberry, Phila.	Philadelphia
Sept. 4-7	Indiana	Indiana
Sept. 4-7	Troy	Bradford
Sept. 4-7	Towanda	Bradford
Sept. 4-8	Stroudsburg	Monroe
Sept. 5-6	Lawton	Susquehanna
Sept. 5-8	Fawn Grove	York
Sept. 7-8	Solebury	Bucks
Sept. 8-14	Centre Hall	Centre
Sept. 11-13	Pulaski	Lawrence
Sept. 11-15	Montrose	Susquehanna
Sept. 11-14	Nazareth	Northampton
Sept. 11-14	Smethport	McKean
Sept. 11-14	Punxsutawney	Jefferson
Sept. 11-14	Titusville	Crawford
Sept. 11-14	Carlisle	Cumberland
Sept. 11-14	Carrolltown	Cambria
Sept. 11-14	Westfield	Tioga
Sept. 11-15	Reading	Berks
Sept. 12-15	Port Royal	Juniata
Sept. 17-22	Athens	Bradford
Sept. 18-20	Emporium	Cameron
Sept. 18-20	Mercer	Mercer
Sept. 18-21	Dallas	Luzerne
Sept. 18-21	Meyersdale	Somerset
Sept. 18-21	Mansfield	Tioga
Sept. 18-21	Dayton	Armstrong
Sept. 18-21	Clearfield	Clearfield
Sept. 25-28	Lehighton	Carbon
Sept. 25-28	St. Marys	L...
Sept. 25-28	Clarion	Clarion
Sept. 25-28	DuBois	Clearfield
Sept. 25-28	Carmichaels	Greene
Sept. 25-28	Lancaster	Lancaster
Sept. 25-28	Honesdale	Mercer
Sept. 25-28	Somerset	Somerset
Sept. 26-29	Junction Park	Beaver
Sept. 26-28	New Freedom	York
Sept. 28	Curtiswille	Clarion
Oct. 2-4	Burgettstown	Washington
Oct. 2-4	Forksville	Sullivan
Oct. 2-5	Bedford	Bedford
Oct. 2-5	Bloomsburg	Columbia
Oct. 2-5	York	York
Oct. 2-5	Lonaxdale	Wayne
Oct. 9-12	Newport	Perry
Oct. 9-12	Hughesville	Lycoming
Oct. 9-12	Gratz	Dauphin
Oct. 10-13	Corry	Erie
Oct. 16-19	Lewisburg	Union
Oct. 24-26	Franklin	Venango
Nov. 6-10	Philadelphia	Philadelphia
Nov. 22-23	Media	Delaware
Nov. 28-Dec. 1	Biglerville	Adams
Dec. 6-8	Scranton	Lackawanna
Dec. 12-14	Bendersville	Adams
Undecided	Brookville	Jefferson
Undecided	Wilkes-Barre	Luzerne
Undecided	Lewistown	Mifflin
Undecided	Youngwood	Westmoreland
Undecided	Tunkhannock	Wyoming

New York

DATE	PLACE	COUNTY
Aug. 7-9	Newark Valley	Tioga
Aug. 14-17	DeRuyter	Madison
Aug. 14-17	Whitney Point	Broome
Aug. 14-17	Fulton	Oswego
Aug. 20-25	Cortland	Cortland
Aug. 21-23	Middletown	Orange
Aug. 21-24	Afton	Chenango
Aug. 21-24	Sandy Creek	Oswego
Aug. 21-24	Warrensburg	Warren
Aug. 21-24	Gouverneur	St. Lawrence
Aug. 21-24	Warsaw	Wyoming
Aug. 27-30	Ballston Spa	Saratoga
Aug. 28-30	Canton	St. Lawrence
Aug. 28-31	Norwich	Chenango
Aug. 28-31	Lowville	Lewis
Aug. 28-31	Trumansburg	Tompkins
Aug. 28-31	Hornell	Steuben
Aug. 28-31	Monticello	Sullivan
Aug. 28-31	Hudson Falls	Washington
Aug. 29-Sept. 1	Whiteplains	Westchester
Aug. 29-Sept. 1	Brockport	Monroe
Sept. 3-6	Chatham	Columbia
Sept. 3-7	Little Valley	Cattaraugus
Sept. 3-7	Orangeburg	Rockland
Sept. 3-7	Ogdensburg	St. Lawrence
Sept. 3-8	Rochester	Monroe
Sept. 4-6	Dryden	Tompkins
Sept. 4-7	Potsdam	St. Lawrence
Sept. 4-7	Watkins	Schuyler
Sept. 4-7	Watertown	Jefferson
Sept. 4-7	Troupsburg	Steuben
Sept. 4-7	Penn Yan	Yates
Sept. 4-7	Walton	Delaware
Sept. 4-7	Westport	Essex
Sept. 4-8	Newark	Wayne
Sept. 5-7	Poughkeepsie	Dutchess
Sept. 5-7	Rome	Oneida
Sept. 11-13	Cape Vincent	Jefferson
Sept. 11-14	Plattsburg	Clinton
Sept. 11-14	Cambridge	Washington
Sept. 11-14	Nassau	Rensselaer
Sept. 11-14	Owego	Tioga
Sept. 12-14	Naples	Orange
Sept. 12-15	Albion	Orleans
Sept. 17-21	Oneonta	Otsego
Sept. 18-20	Brookfield	Madison
Sept. 18-21	Boonville	Oneida
Sept. 18-21	Riverhead	Suffolk
Sept. 18-21	Angelica	Allegheny
Sept. 18-21	Altamont	Albany
Sept. 18-21	Malone	Franklin
Sept. 18-22	Batavia	Genesee
Sept. 19-22	New City	Rockland
Sept. 19-22	Ithaca	Tompkins
Sept. 20-22	Canandaigua	Ontario
Sept. 24-26	Richfield Springs	Otsego
Sept. 24-28	Cobleskill	Schoharie
Sept. 25-27	Waterloo	Seneca
Sept. 25-28	Cuba	Allegheny
Sept. 25-28	Hamburg	Erie
Sept. 25-29	Binghamton	Broome
Sept. 25-29	Mineola	Queens
Sept. 25-28	Bath	Steuben
Sept. 26-28	Vernon	Oneida
Sept. 26-29	Avon	Livingston
Sept. 27-29	Palmyra	Wayne
Oct. 1-5	Elmira	Cumming
Oct. 2-4	Morris	Otsego
Oct. 2-4	Dundee	Yates
Oct. 2-6	Fonda	Montgomery
Oct. 3-5	Hemlock	Livingston
Oct. 9-11	Perry	Wyoming
Oct. 9-12	Caledonia	Livingston
Undecided	Wellsville	Allegany
Undecided	Olean	Cattaraugus
Undecided	Moravia	Cayuga
Undecided	Dunkirk-Fredonia	Chautauqua
Undecided	Green	Chenango
Undecided	Delphi	Delaware
Undecided	Margaretville	Delaware
Undecided	Cairo	Greene
Undecided	Herkimer	Herkimer
Undecided	Morrisville	Madison
Undecided	Reeds Corners	Ontario
Undecided	Cooperstown	Otsego
Undecided	Troy	Rensselaer
Undecided	Ellenville	Ulster
Undecided	Lyons	Wayne
No fair this year—Lockport		Niagara

Ohio

DATE	PLACE	COUNTY
Aug. 7-10	Xenia	Greene
Aug. 7-10	Urbana	Champaign
Aug. 8-10	Piketon	Pike
Aug. 14-17	Warren	Trumbull
Aug. 14-17	Columbus	Franklin
Aug. 14-17	Springfield	Clark
Aug. 15-18	Carthage	Hamilton
Aug. 20-24	Celina	Mercer
Aug. 21-24	Proctorville	Lawrence
Aug. 21-24	London	Madison
Aug. 21-24	Blanchester	Clinton
Aug. 21-24	Zanesville	Muskingum
Aug. 21-24	Athens	Athens
Aug. 21-24	Owensville	Clermont
Aug. 21-25	Toledo	Lucas
Aug. 22-25	Lucasville	Scioto
Aug. 23-25	Burton	Geauga
Aug. 27-31	Lima	Allen
Aug. 27-31	Greenville	Darke
Aug. 28-30	Woodsfield	Monroe
Aug. 28-30	Jefferson	Ashtabula
Aug. 28-31	Ravenna	Portage
Aug. 28-31	Gallipolis	Gallia
Aug. 28-31	Napoleon	Henry
Sept. 3-7	Dayton	Montgomery
Sept. 3-7	Van Wert	Van Wert
Sept. 4-6	Canfield	Mahoning
Sept. 4-7	Upper Sandusky	Wyandot
Sept. 4-7	Marysville	Union
Sept. 4-7	Akron	Summit
Sept. 4-7	Tiffin	Seneca
Sept. 4-7	Painesville	Lake
Sept. 4-7	Wauseon	Fulton
Sept. 5-7	New Lexington	Perry
Sept. 5-7	Caldwell	Noble
Sept. 5-8	Findlay	Hancock
Sept. 11-13	Chagrin Falls	Cuyahoga
Sept. 11-13	Elyria	Lorain
Sept. 11-13	Lisbon	Columbiana
Sept. 10-14	Paulding	Paulding
Sept. 10-14	Bowling Green	Wood
Sept. 11-14	Lebanon	Warren
Sept. 11-14	Marietta	Washington
Sept. 11-14	West Union	Adams
Sept. 11-14	Sidney	Shelby
Sept. 11-14	St. Clairsville	Belmont
Sept. 11-14	Bucyrus	Crawford
Sept. 11-14	Newark	Licking
Sept. 11-14	Bellefontaine	Logan
Sept. 11-14	Powell	Delaware
Sept. 11-15	Montpelier	Williams
Sept. 12-14	McConnelsville	Morgan
Sept. 17-21	Troy	Miami
Sept. 18-20	Cadiz	Harrison
Sept. 18-20	Medina	Medina
Sept. 18-21	Mt. Vernon	Knox
Sept. 18-22	Marion	Marion
Sept. 18-21	Fremont	Sandusky
Sept. 18-21	Old Washington	Guernsey
Sept. 18-21	Hicksville	Defiance
Sept. 18-21	Wapakoneta	Auglaize
Sept. 24-28	Eaton	Preble
Sept. 25-28	Mt. Gilead	Morrow
Sept. 25-28	Mansfield	Richland
Sept. 25-28	Sandusky	Erie
Sept. 26-28	Smithfield	Jefferson
Sept. 26-29	Logan	Hocking
Sept. 26-29	Canton	Stark
Oct. 1-4	Wooster	Wayne
Oct. 2-5	Georgetown	Brown
Oct. 2-5	Hamilton	Butler
Oct. 2-5	Carrollton	Carroll
Oct. 2-5	Coshocton	Coshocton
Oct. 2-6	Ottawa	Putnam
Oct. 9-12	Ralnsboro	Highland
Oct. 9-12	Dover	Tuscarawas
Oct. 10-13	Lancaster	Fairfield
Oct. 24-27	Circleville (Pumpkin Show)	Pickaway
Not announced	Rock Springs	Meigs

West Virginia

DATE	PLACE	COUNTY
Aug. 7-10	Pennsboro	Ritchie
Aug. 10-11	White Sulphur	Greenbrier
Aug. 14-17	Parkersburg	Wood
Aug. 21-24	Fairmount	Marion
Sept. 3-7	Bluefield	Mercer
Sept. 3-7	Wheeling	Ohio
Sept. 12-15	Fayetteville	Fayette
Sept. 11-14	Clarksburg	Harrison
Oct. 2-5	Parsons	Tucker
Oct. 11-13	St. Marys	Pleasants
Oct. 17-20	Charleston	Kanawha
Oct. 18-20	Clay	Clay
Undecided	Ripley	Jackson
Undecided	Beckley	Raleigh
Undecided	Kingwood	Preston
Undecided	Marlinton	Pocahontas
Undecided	Summersville	Nicholas

Maryland

DATE	PLACE	COUNTY
Aug. 13-17	Taneytown	Carroll
Aug. 14-17	Salisbury	Wicomico
Aug. 28-31	Rockville	Montgomery
Sept. 4-8	Lutherville	Baltimore
Oct. 16-19	Frederick	Frederick

Delaware

DATE	PLACE	COUNTY
Sept. 3-7	Wilmington	New Castle

The Practical Farmer Live Stock and Dairy Section

Steer Feeding for Amateur and Expert

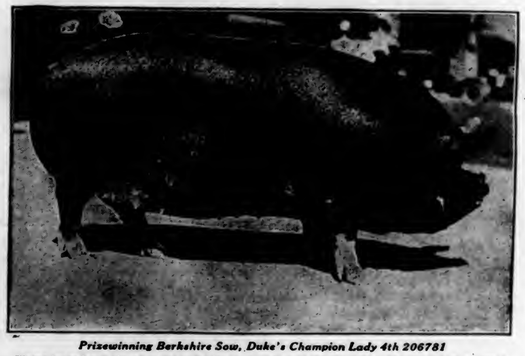
W. H. TOMHAVE

The cattle feeding industry in the East has been greatly stimulated during the past few years because of the increased demand for beef products, due to the present war, the scarcity and increased price of labor, the increased stimulation to all phases of agriculture and the recognized need for live stock as a means of marketing farm crops and retaining the fertility of the soil. This form of live stock feeding is very closely linked with the best agricultural practice in Pennsylvania and other Eastern states. The best illustrations are found in sections of Lancaster Co., Pennsylvania, where there are farms on which cattle have been fed each year for half a century. The indirect result of this practice is brought out by the fact that Lancaster county today is regarded as the richest agricultural county in the United States.

The success in feeding cattle is not dependent upon the work of one year, but upon a series of years. There have been both favorable and unfavorable years during the past decade. This is true of every industry, but it is safe to say, however, that during this time a substantial profit has been made a greater number of times than the number of times a loss has been incurred. The past year was probably the banner feeding year in the history of the beef industry. This was possible even with the prevailing high price of grain during the entire period. It is due largely, however, to the favorable market conditions from the feeder's point of view during the season when feeders were purchased and during the time when the finished cattle were sold on the market. The favorable results secured during the last year will have a marked tendency to create farther interests in cattle feeding. The number of cattle that will be put in the feed lot will be determined to a large extent by the condition of the corn crop at harvest time. Present indications are that a good crop of corn will be harvested which will insure the filling of the feed lots with cattle during the coming winter.

With this universal interest in beef production, a number of farmers will plan to feed cattle for the first time. To these it seems timely to offer some words of caution or warning. In the first place these men should make a thorough study of the feeding business before handling it on too large a scale. They should also establish the business of their farm in such a way as to make the feeding of cattle an annual affair. It is essential that they make a careful survey of the amount of feed that will be available during the winter. A very common mistake made by beginners is to secure more cattle than they have feed for, and the result is that their cattle will not be fed well enough and it becomes necessary to market them in a thin condition and possibly at a time when market conditions are unfavorable. These difficulties should be guarded against and carefully studied before the cattle are secured.

The securing of feeders is an item of importance. As a rule, feeding cattle of all kinds can be purchased upon the central feeder cattle markets, such as Buffalo, Lancaster, Pittsburgh or the large markets in the Central West. The grade of cattle to put in the feed lot must be determined by the individual who expects to conduct the operation. As a rule, it is desirable to secure a class of cattle that shows a marked tendency of being sired by good beef bulls. There are times when inferior cattle can be fed to an advantage, but this can only be done when they can be purchased at a low enough figure to allow for a wide margin between the buying and the selling price. Well bred cattle make better gains in the feed lot and finish to better advantage than a poor lot of cattle. The owner also takes a greater interest in working with good cattle than to put the feed into stock of inferior quality. In addition to getting cattle showing beef breeding, it is desirable to have animals that show proper growth and possess a conformation that will make it possible to develop into a good type of butcher's steer. Cattle selected for the feed lot should possess a comparatively short, wide head, a straight top line, a deep middle, a good spring of ribs and should not be too leggy. Cattle of this description may be thin in flesh. As such, they will do better in the feed lot than where they carry considerable amount of condition or finish.



Prizewinning Berkshire Sow, Duke's Champion Lady 4th 206781

There have been times in steer feeding when it was the pigs which followed them that made the profit. At today's prices both bring good returns to the skillful feeder

If cattle feeding is to become a part of the farm business it is essential to provide some equipment in which to house and feed them. This equipment should be simple and inexpensive yet at the same time adequate to provide ample protection. If there is a basement barn on the farm it is best to arrange this so that it can be opened to the south, allowing the cattle to come in and go out at will. Mangers should be installed so that the cattle can be fed conveniently with a minimum amount of labor. The cattle should not be tied, but permittted to run loose in the stable. If a building must be built, it is desirable to construct a shed open to the south and closed on three sides. Such a shed can be cheaply built and will provide ample protection for cattle in the lot. The mangers should be built so as to allow about 2½ feet for each animal. It is also desirable to have a feed alley along the manger to add to the convenience of feeding. It is highly essential that a yard is provided in which the cattle may exercise.

The system of feeding followed will depend upon the kind of feed that is available. No farm can permanently afford to feed cattle without the use of a silo. The silo should be filled with corn that is well matured, as best results are secured from feeding silage of this character, and it is essential to feed it in almost unlimited amounts. Practically all experiments indicate that the returns from feeding operations are in direct proportion to the amount of silage fed. A ration made up of corn silage, small amount of corn stover or mixed hay supplemented with from two to three pounds of cotton seed meal per thousand pounds of live weight daily seems to give satisfactory results. This ration during the latter part of the feeding period. It is possible, however, to produce a very good quality of cattle by feeding corn silage, mixed hay or stover and cotton seed meal. In starting the cattle on silage it is desirable to begin with a light allowance and increase it gradually so that the maximum amount is fed in about ten days or two weeks after starting the feeding operation. There is very little danger of getting the cattle off feed when they are receiving a heavy silage ration. It is essential, however, that they consume readily all feed put in the manger. The corn silage is usually fed morning and evening, and mixed hay and corn stover allowed during the middle of the day. The allowance of cotton seed meal is poured over the silage.

There are farms upon which cattle feeding operations are carried on without the use of silage and the work has been successful on many of them. By this method of feeding it is essential, however, to feed grain in addition to the factory results. In some cases it may be advisable to add ear or shelled corn to allowance of roughage from the beginning of the feeding period. It will also be found that this method of feeding will be more expensive and is not so conducive to return profits as when silage forms the important part of the roughage. One of the most desirable methods to follow when silage is not available, is to feed the corn as bundle corn direct from the field. Feeding it by this method requires the smallest amount of labor and the corn is in the best condition that it can be secured when not put into the silo. It is necessary to supplement the bundle corn with a protein feed such as oil meal or cotton seed meal. It is also well to allow the cattle some clover, alfalfa or mixed hay in addition. If the corn is fed as grain in addition to hay and stover, it may be as broken ear corn or corn and cob meal. If whole corn is fed, it is essential to have hogs follow cattle in the feed lot. This is not only true in feeding bundle corn, but also when broken ear or shelled corn is fed in addition to silage and cotton seed meal. If ground corn is fed there is very little advantage in keeping hogs in the feed lot.

The length of time to feed the cattle will depend somewhat upon the market as well as the general conditions of the farm. If the object in feeding is to provide employment during the winter and complete the feeding operation when farm work opens in the spring, it is customary to feed five to six months. This matter must be arranged to meet local conditions.

The cattle feeder must study market conditions in order to dispose of his cattle to the best advantage. It is never possible to predict exact market conditions or conditions that will prevail. It frequently happens that there is a break in the cattle market during the winter months. New feeders often make a mistake at this time by getting scared of the future condition of the market and, instead of holding their cattle, dispose of them at a loss simply because they are putting cattle in large numbers on an already overcrowded market. Every feeder should be in a position to hold his cattle from going to market under such conditions in order to avoid an extreme demoralized condition of the market.

Growing Good Horses

W. A. GRAHAM.

Too many farmers who once made a business of keeping a few good mares and growing their colts to maturity, have almost or altogether abandoned the practice. This is the reason I advise those who have good mares to continue breeding them. The future looks good for all who can and will grow a few good horses each season. That is, employ a system of horse growing and continue it from year to year.

The best and most satisfactory colts I have grown as general purpose stock have been the product of good grade mares bred to stallions of the big types of horses. Such colts seem to partake more of the size and weight of the sire than the dam, and under good treatment make quite large horses. They grow, by maturity, to such a size that they make splendid draft animals, and that is the kind of horse the market demands. A

long time ago the craze was for saddle horses, then later harness animals were the rage. Now the automobile has about dispensed with harness horses, even on the farms, and large draft horses are most in demand.

Contrary to the notion of many, horses are not expensive to grow. Until mature they require but a moderate amount of grain. In fact, the less grain they eat the better it is for them. When breeding and growing horses in Kentucky some years ago, I brought horses up to four years of age on grass and hay largely, and they were of perfect development, and when broken and put to work had more endurance than when fed quantities of grain as they grew up.

I still like an abundance of pasture grasses for the summer season, and an abundant supply of mixed hay made from clover and timothy. As grain food, the best I can recommend is sheaf oats cut finely. For growing young horses but little corn should be fed. When old enough to break and do light work, then the best grain feed consists of both threshed oats and corn.

For a fine winter food that is both bulky and rich, corn silage is destined to play a fine part in the growing of horses. The economy of this food is where the advantage lies, and that is a very important consideration. Sheaf oats cut up, corn silage, abundant summer pasture, and bright mixed hay, are the foods for growing horses in a good and economical way.

Indiana.

Feeding for Milk Production

The present high prices of feedstuffs call for the exercise of careful forethought in selecting the feeds that will produce the most milk at the least cost.

The following rations suggested by A. A. Borland, in charge of dairy husbandry extension at the Pennsylvania State College, bear special reference to economical milk production. The dairyman should feed in addition to the grain all the roughage the cow will eat. More roughage will be consumed if it is fed three of four times rather than two or three times daily.

When roughage is timothy hay, timothy hay and corn stover, timothy hay and silage or mixed hay and silage, two rations are suggested: 1. 100 pounds wheat bran, 200 pounds cotton seed meal, 50 pounds gluten feed, 50 pounds linseed meal; 2. 100 pounds brewers' dried grains, 50 pounds corn and cob meal, 200 pounds cotton seed meal and 100 pounds linseed meal.

When roughage is hay, mixed hay and corn stover or clover hay and corn silage these two rations are suggested: 1. 100 pounds wheat bran, 200 pounds gluten feed and 50 pounds cotton seed meal; 2. 100 pounds corn and cob meal, 100 pounds cotton seed meal, 50 pounds gluten feed and 50 pounds linseed meal.

When roughage is clover hay and corn stover, feed 250 pounds corn and cob meal, 100 pounds cotton seed meal, 50 pounds gluten feed and 50 pounds linseed meal.

When roughage is clover or alfalfa hay feed: 1. 200 pounds corn and cob meal, 100 pounds ground oats and 100 pounds gluten feed; 2. 250 pounds corn and cob meal, 100 pounds wheat bran and 100 pounds gluten feed.

For pasture grass feeding after July 15, use 100 pounds bran or dried distillers' corn grains, 150 pounds cotton seed meal, 100 pounds gluten feed and 50 pounds linseed meal.

With any of these rations, except those involving pasture grass, feed to a Guernsey or Jersey cow one pound of grain for every four pounds of milk produced; to an Ayrshire, Holstein or Shorthorn cow feed one pound of grain for every four and one-half pounds of milk. With the pasture grass ration feed to a Jersey or Guernsey cow producing over twenty pounds of milk, one pound of grain for every five and one-half pounds of milk; to an Ayrshire, Holstein or Shorthorn cow producing over twenty-five pounds of milk daily, feed one pound of grain for every six and one-half pounds of milk.

While cows are in pasture or on green crops, a balanced ration can be maintained by combining with the green food one of the two following concentrated feed mixtures recommended by Cornell for summer feeding: 1. 300 pounds wheat bran, 200 pounds gluten feed, 100 pounds hominy, corn meal or ground oats; 2. 200 pounds malt sprouts, 200 pounds wheat bran, 200 pounds gluten feed, 200 pounds hominy, corn meal or ground oats.

Mixed wheat feed may be used with either combination in place of wheat bran. Distillers' grains might be used in place of gluten feed. More gluten might well be added to either combination when cows are carefully watched.

What Kind and Where for the New Silo

After deciding that a silo would be an excellent adjunct to the dairy this winter the question as to what kind will give the best results often presents itself. A little inquiry among silo owners in your neighborhood will be worth while.

In tests of the relative value of wood stave and concrete block silos made by the Pennsylvania State College, the corn stored in each silo was of the same variety and stage of maturity and the silos were filled at practically the same time.

Judged by chemical tests the silage was preserved equally well in both silos. Although no special feeding tests were conducted, the silage from both silos was eaten with the same relish by the cows in the college dairy herd. The odor and physical appearance also were the same.

Similar tests made at other college experiment stations with hollow tile, block, monolithic concrete and metal silos, all tend toward a similar conclusion, viz., that silos of different materials, properly constructed, preserve silage equally well.

In general the silo should be located outside rather than inside the barn. Place it a few feet away from the barn so that a small feed room may be built between. This arrangement not only provides a convenient place for the silage cart, but also a means of separating the silo from the milking barn where silage odors are undesirable. This advice is offered by the Pennsylvania State College. When suitable, the best location for the silo is at the north side of the barn where it will obstruct the least amount of sunlight. Convenience in filling should always be considered.

The following table, prepared at Iowa State College, gives capacities for a few of the more common sizes:

Diam.	Height	Tons	Acres to fill	Lbs. to feed daily
10	34	56	3.7	525
12	36	87	5.8	751
12	38	94	6.4	755
14	38	128	8.5	1030
14	40	138	9.2	1030
16	38	167	11.1	1340
16	40	180	12.0	1340

The More Sheep Movement

The Philadelphia Wool and Textile Association is taking an active interest in the joint sheep sale to be held at the Ohio State Fair Grounds on the seventh and eighth of August. The distribution just at this time of these fifteen hundred registered and high grade sheep is a long step forward in popularizing and improving the sheep situation in the East. It is by such means that the industry will return to its former importance. Entries have been made and forfeit fees deposited with the secretary for more than a thousand registered Shropshires, Hampshires, Rambouillets, Lincolns, Cotswolds and Oxfords, besides two hundred and sixty high grade ewes.

What We Are Asked

Pasture Query.—E. G. B., New York, writes: "I have a piece of ground now in corn in a good state of cultivation, which I wish to use for a hog pasture next year. I would like to sow a mixture of grasses, clover, etc., at the last cultivation of the corn about August 1st. Will you please advise me as to the following mixture: Equal parts of Red clover, Alsike, timothy and hairy vetch? Would you add or take away from this mixture? This ground had city stable manure under the furrow this spring."

This grass mixture is fairly satisfactory, but I should enlarge the mixture by cutting down the Alsike clover one-half and substituting White Dutch clover. If the pasture is to be more or less permanent it would be well to add a little blue grass. A. E. G.

Removing Cabbage Leaves.—A. E. G., Virginia, in a letter says: "Please ask the Garden Editor to tell us about cabbages. Do they really head better if the outside leaves are removed?"

No. They will not head so well if the leaves are pulled off. What cabbages mainly need is heavy feeding and plenty of moisture. My cabbages are planted in ground that was heavily covered with manure last fall and in preparing the plat for them I worked into the soil a heavy application of acid phosphate. Then as the plants start to grow after transplanting I add a side dressing of nitrate of soda to push them along. This is done with both early and late cabbages. The faster you can make cabbages grow the better the heads will be. W. F. M.

Caponizing, etc.—E. K., Pennsylvania, writes: "My young chicks got naked all over; the trouble started at the head. What is the cause and remedy? I would like to get into communication with some nearby farmer who is able to supply me with feed at prevailing prices. Please let me know where I can find a caponizer."

In the case of your first question the trouble is caused by the depluming mite. The remedy is usually carbolated vaseline, but it is slow and not always effective. Tincture of iodine and water, equal parts, is the more effective remedy. Spraying with a good disinfectant and germicide will help keep down the trouble if every interior is well sprayed.

As to your other problems, why not get in touch with the representative of your county farm bureau at the county seat? It is just such questions as this that he can answer, traveling over the county as he does each day he knows who has things to sell and who can caponize. His services are free. Then, too, your feed dealer will probably know of some caponizer able to help you, or you may secure one from some Philadelphia poultry supply dealer. Full directions come with each caponizer set and a little practice will make you an expert, if you have a mechanical turn of mind. F. V. L. T.

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Looking to the Winter Egg Supply

F. V. L. TURNER

Let us urge upon every owner of a fowl of any kind that it be preserved for this fall and winter, either for eating or laying, and that every hen that will lay be saved for the vitally serious business of recreating the now sadly depleted supply of reproducers.

One of the clearest, cleanest lessons taught the poultry man is made up from the report of the Dairy and Food Bureau of the State Board of Agriculture of the State of Pennsylvania, and the lesson is, of course, duplicated by every other state where cold storage is practiced. The reports of the 71 cold storage houses on June 30th showed 16,577,051 dozens of eggs on hand, breaking all past records with the exception of June 30, 1915, when 18,800,169 dozens were reported. Three months ago, March 31, 1917, the cold storage warehouses reported 164,337 dozens of eggs in storage; during the last three months almost 16,500,000 dozens have been collected by interests which will hold the eggs until the fall and winter months.

Most of these eggs were purchased at prices ranging at from 30 to 35 cents per dozen. Last year at this time there were 15,475,440 dozens of eggs in storage, purchased at prices ranging from 22 to 27 cents a dozen. The reports also show 421,234 pounds of eggs out of shell, a larger amount than any similar June period. Forty-four out of the 71 cold storage houses of the state reported holdings of eggs in shell and 11 eggs out of shell. Philadelphia warehouses show 7,727,910 dozen of eggs in storage, and Allegheny county has 3,970,500 dozen.

The poultry holdings are reported as 4,937,963 pounds, compared with 7,059,754 pounds three months ago. The present holdings of poultry are several million pounds above any records for a similar period, the reports a year ago showing 1,495,279 pounds. Almost all of the poultry is held in Philadelphia, as nine warehouses there report 4,327,411 pounds on hand. Three months ago 27 warehouses did not contain any food product, but the present report shows only nine without holdings.

And here is the lesson: Storage interests have paid approximately 40 per cent. more for eggs this year than last year, because the supply has been severely curtailed through the panic that followed the skyrocketing of grain prices last fall when every feather not actually needed went to market. To pay this increased price for eggs for storage purposes the storage interests must have been well assured of their ability to get not only storage charges and interest on their money invested, but a most satisfying profit.

With every condition making for a high market the safety to cold storage interests lies in the fact that only about 6½ per cent. more eggs have gone into storage this year over last year, with a prospective demand that will carry prices up to and probably above the dollar per dozen mark.

In 1915 there were, on June 30, 18,800,169 dozens of eggs stored in this state; layers were more plentiful then than now and the prospective demand for eggs in the fall and winter of 1915-16 was not so alluring as last year, and was, of necessity, vastly less than this year—*but there were not enough hens to lay the eggs to fill the storage houses this spring and summer to the same extent as in 1915.*

It is the most natural thing in the world, this little game of saving today what is required tomorrow, at a profit, hence, because there was a shortage in the supply of eggs the price was 40 per cent. greater than last year, therefore the price will be greater later on.

This brings us down to the importance of adjusting two vital factors in farm management and in the conduct of our hen house economics; every poultry raiser must, in order to enjoy the truly marvelous profits which will come from eggs this fall and winter, conserve every source of supply and prevent the marketing of poultry meat until such time at least that it reaches a price above egg profit possibilities; in the management of rations for the layers which will insure maximum output and to further provide against disease and death.

Kansas, in the heart of the poultry producing section of the Middle West, has worked out a ration that not only produces eggs, but one which causes as little liver trouble as the standard ration. Here is the ration: Scratch food, 400 pounds cracked corn, $13.60. Dry mash, 150 pounds wheat bran, $2.48; 150 pounds wheat shorts, $3.38; 100 pounds beef scrap, $3.50; 4 pounds of fine charcoal and 3 pounds of fine salt. The cost of 100 pounds of mash is $2.87. A farther reduction in cost can be made by feeding sprouted oats.

Feed in the regular way or follow the plan of the Kansas people, moist mash enough every afternoon, to be cleaned up by the hens in thirty minutes. If sprouted oats are not used, employ some other form of green food. A tablespoonful of Epsom salts every two weeks to 25 hens will help keep them healthy. By using simplified rations poultrymen can reduce their cost of feeding without affecting egg yields while taking the splendid profits which eggs are making now and the wonderful financial results coming this fall and winter.

Upon the basis of 5 pounds of feed to every dozen eggs the cost of production is 14 cents on the ration above, therefore the secret of profit lies in keeping the hens up to the minute on appetite and health.

Disinfectants are far too sparsely used by poultrymen—a more general use of these anti-bug and anti-disease agents means more eggs because the hens are left more contented and physically more able to properly perform their duties.

Roosts for Growing Chicks

From reports reaching poultry experts connected with the Pennsylvania Department of Agriculture it would seem certain misinformed poultry keepers are again not allowing their growing chicks to roost but perpetrating what amounts to cruelty by compelling them to continue to roost on the floor or ground.

Leghorn chickens from six to eight weeks old naturally seek a roost when night comes and roosts should be provided. Plymouth Rocks, Wyandottes and Rhode Island Reds can wait a little longer. But all should be allowed roosts early, lest later they will have acquired the pernicious and cruel floor habit.

All chicks compelled to sleep on the floor are restless at night; inclined to crowd; to pile up in corners; to sweat; to be unthrifty and even, on cool nights, kill some by crowding.

All this is prevented by early roosting and the one-time theory that early roosting caused crooked breast bones has never been proved and is given small credence nowadays.

Roosts for growing chicks should not exceed an inch calibre and as the chicks grow should be raised off the floor until finally as high as the coop will allow. The chicks like high roosts best.

To compel growing chickens to feed and roost with adults is another practice that amounts to cruelty. Such chicks are crowded from pillar to post or pecked at and trampled on both at feeding and roosting time; usually go hungry to bed; attract to their more tender shins and bodies all the lice and mites and are generally slow growing and unthrifty. A colony house or a house 8x10 or 10x12 can be afforded by every farmer that wishes to grow as valuable a crop as the chicken crop. The Pennsylvania Department of Agriculture has a new poultry bulletin, that can be had free, which shows hows these should be built.

Change Poultry Feed, Don't Reduce it

Present difficulties experienced by abnormally high prices for poultry feed should be met by changing the ration instead of reducing it. The poultry authorities at the New York State College of Agriculture make the following suggestions as a partial guide toward cheaper rations: Corn meal and clover in equal parts may be used as a partial substitute for bran. The leaves and chaff from clover hay may be fed dry in a box or steamed over night and fed in a trough in the morning. Care should be taken not to feed too many large stalks.

Gluten feed is palatable and may replace part of the white wheat middlings, and barley may be used to replace wheat in the grain ration. It often happens that shrunken wheat may be purchased at a less price than fully matured wheat. If of good quality it is fully as desirable for poultry feeding as the matured wheat.

If green bone can be obtained from butchers' shops at a price to warrant its use it may be fed as part of the animal food. From ½ to ¾ of an ounce a day for each hen, or 1½ ounces every other day, fed in troughs, may replace in part the beef scrap in the ration.

Poultry Briefs

In order to put dressed poultry on the market in the best condition, it is necessary to fatten the birds ten days to two weeks before they are marketed. A simple crate fattening ration for poultry recommended by H. C. Knandel, in charge of poultry extension at the Pennsylvania State College, consists of 60 pounds of corn meal and 40 pounds of middlings moistened with skimmilk or buttermilk. Fowls fed on a wet mash shrink heavily in shipment. Poultry that is to be sold live weight, therefore, had better be confined in pens and fed cracked corn.

The quarters of adult birds should be thoroughly cleaned, sprayed and renovated twice annually. Many poultrymen find it advantageous to spray their houses bi-monthly, thus insuring greater cleanliness. Any of the coal tar products make excellent disinfectants. They can be purchased at hardware stores in convenient packages. Give the birds clean, comfortable quarters and good results will follow.

As a good preventive of colds in poultry, use copper sulphate one ounce to ten gallons of water or enough potassium permanganate to turn the water blue. Good ventilation and plenty of fresh air are essential in the hen house, but one should guard against excessive drafts.

A good way to save feed bills is to cull closely. There are all kinds of hens in the average flock, good, bad, and indifferent. This is usually true at this time of the year even if they were—as is rarely the case—a good even bunch of early pullets last fall.

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Seven Years Old—Runs Like New
"The Butterfly Separator we purchased of you about seven years ago is still doing fine work. I recently took it apart and cleaned the gears with coal oil. Now it runs like a new machine and works as well as ever."
H. S. Stonebraker,
Kokomo, Indiana.

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Thos. S. Kermosky,
Point Aux Pius, Mich.

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By J. STUART GROUPE

FOR twenty-two years we have been working on our present farm to be prepared for conditions just as they exist today. When we went on to the farm in 1895 it had been in the hands of tenants for seventeen years and was in a very run-down condition. In fact, things had been going from bad to worse so rapidly that it was only possible to get a tenant to stay for one year. The yield of wheat had fallen to eight and ten bushels per acre from fields which at one time had produced forty bushels to an acre. Our ambition was to bring these same fields back to forty-bushel yields in spite of all that our neighbors told us about "it couldn't be done."

Mowing and Plowing Under Heavy Growths Restored to the Soil the Depleted Humus

Many times our methods, in the opinion of observers, made us fit subjects for the insane asylum, but we kept quietly working and have lived to see some of our early critics adopt some of our radical ways. In 1913 we passed the thirty-bushel mark when we harvested forty-five acres which threshed out 1395 bushels, or thirty-one bushels to the acre.

We figured the reason that the fields did not produce was because nearly all the humus had been farmed out of them, so adopted the policy to sell no straw, hay, corn stover or roughage. In our barn we have two mows which hold just enough to feed our horses and cattle for a year and when they are full our hay harvest is finished. The balance of the clover then is mowed and left as a mulch. For instance, in 1913 we left in the field enough clover to make 68 tons of hay in the barn. But then, why shouldn't we? Scientists tell us that a ton of clover hay contains 40 pounds of nitrogen which at this time can be figured at 25 cents per pound, making a ton of hay worth $10 for nitrogen, besides the potash and phosphoric acid in it which is worth $1.60 under normal conditions, or a total of $11.60 a ton. In my opinion, however, this is only about one-half the value of a ton of clover returned to the soil. The other half lies in its worth as humus. Nature's plan is to let plants rot down to return organic matter and in so doing liberate the dormant plant food in the soil. Then, too, one ton of humus is estimated to hold two tons of water. During the dry spell which we have nearly every year the great value of a soil rich in humus is fully appreciated. On the other hand, during a long wet period if the soil does not retain the water a lot of plant food is washed out. With a lot of humus in the soil this water is held with air around it, like it is in a wet sponge, and is available for the plants when they most need it.

Humus also darkens soil so that it will absorb the sun's rays better and make it warmer earlier in the spring than a hard clay soil. Plowing is also made easier, as the soil is looser. There is also less tendency for the soil to wash, eliminating the ill effects of erosion. If we would figure from 50 cents to $1 for each of these reasons it can readily be seen that the clover hay would have a value of about $25 a ton. Do you see now why we let it stay in the field when we could only get $8 a ton for it in the barn, and it would have cost us at least $3 a ton to mow it?

We were looking all the time to our future grain crops, little thinking that the potash situation would develop as it has and find us so well prepared. Pennsylvania soils, in my opinion, have more dormant potash in them than can be used in many generations, and it is humus which will release it. With our farm filled with organic matter we have no potash problem. We have raised 87½ bushels of shelled corn per acre besides 310 bushels of potatoes an acre without buying potash in bags. We grow the Medium Red clover by sowing six quarts per acre on top of the wheat in spring. We do not like the Mammoth clover, as we find it will not give as good a second crop as the Medium. We cut our clover a little before it is ripe, so as to stimulate the second growth, which is allowed to ripen seed. As it is not cut until fall, the seed shatters out and gives us a good stand for the following year. We are located in a limestone valley here, where the stone is near the surface, so that we only apply lime according to the growth of the clover. Whenever we see sorrel and plantain getting a start we put on 50 bushels, or two tons, of burned lime per acre. Some fields we have covered every eight years, others only receive an application every twelve to sixteen years.

Having our soil filled with organic matter, which is one of the essentials in successful potato culture, and the large amount of nitrogen put there by the clover plants, we have had good yields of potatoes. When we first started to get our soil in this condition the fertilizer agents were hunting business and we would have had no trouble to buy all the nitrogen and potash we needed. Now with a shortage of fertilizing material and cars to distribute it, we know our supply is provided for and will bring us good returns.

For our potato crop we use a three-year rotation of potatoes, wheat and clover. Our regular rotation is corn, oats, wheat and clover. We do not pasture our crop fields because we feel that for every five cents worth of milk or beef which we make from pasturing good farm lands we lose ten cents worth of succeeding farm crops. We keep our cattle in a 35-acre pasture of waste land supplemented by 5 acres of other land which we use to put the manure on from the time growth starts in the spring until after haying is done, when we can apply the manure direct from the stable to the hay field.

Possibly some of the old readers of The Practical Farmer will see in our practices some of the teachings of our late friend, Mr. T. B. Terry. If they do, they see right, because it was he we were following all the time. In fact, he was the man who filled us with the ambition to do things in the country. What we have done any farmer can do if he will only look beyond the present crop and build for the future. Dean Vivian, of the Ohio Agricultural College, has well said many times in his lectures, "If you want to make the old farm fatter, stuff it with organic matter." This is what Terry taught and what we have tried to practice. How well we have succeeded is told not only by our increased crops, but the satisfaction we have in knowing that each year the farm is getting better, and by the fact that others come to us wanting to know our secrets, which are nothing more than the application of nature's methods.

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Humus also darkens soil so that it will absorb the sun's rays better and make it warmer earlier in the spring than a hard clay soil. Plowing is also made easier, as the soil is looser. There is also less tendency for the soil to wash, eliminating the ill effects of erosion. If we would figure from 50 cents to $1 for each of these reasons it can readily be seen that the clover hay would have a value of about $25 a ton. Do you see now why we let it stay in the field when we could only get $8 a ton for it in the barn, and it would have cost us at least $3 a ton to mow it?

We were looking all the time to our future grain crops, little thinking that the potash situation would develop as it has and find us so well prepared. Pennsylvania soils, in my opinion, have more dormant potash in them than can be used in many generations, and it is humus which will release it. With our farm filled with organic matter we have no potash problem. We have raised 87½ bushels of shelled corn per acre besides 310 bushels of potatoes an acre without buying potash in bags. We grow the Medium Red clover by sowing six quarts per acre on top of the wheat in spring. We do not like the Mammoth clover, as we find it will not give as good a second crop as the Medium. We cut our clover a little before it is ripe, so as to stimulate the second growth, which is allowed to ripen seed. As it is not cut until fall, the seed shatters out and gives us a good stand for the following year. We are located in a limestone valley here, where the stone is near the surface, so that we only apply lime according to the growth of the clover. Whenever we see sorrel and plantain getting a start we put on 50 bushels, or two tons, of burned lime per acre. Some fields we have covered every eight years, others only receive an application every twelve to sixteen years.

Having our soil filled with organic matter, which is one of the essentials in successful potato culture, and the large amount of nitrogen put there by the clover plants, we have had good yields of potatoes. When we first started to get our soil in this condition the fertilizer agents were hunting business and we would have had no trouble to buy all the nitrogen and potash we needed. Now with a shortage of fertilizing material and cars to distribute it, we know our supply is provided for and will bring us good returns.

For our potato crop we use a three-year rotation of potatoes, wheat and clover. Our regular rotation is corn, oats, wheat and clover. We do not pasture our crop fields because we feel that for every five cents worth of milk or beef which we make from pasturing good farm lands we lose ten cents worth of succeeding farm crops. We keep our cattle in a 35-acre pasture of waste land supplemented by 5 acres of other land which we use to put the manure on from the time growth starts in the spring until after haying is done, when we can apply the manure direct from the stable to the hay field.

Possibly some of the old readers of The Practical Farmer will see in our practices some of the teachings of our late friend, Mr. T. B. Terry. If they do, they see right, because it was he we were following all the time. In fact, he was the man who filled us with the ambition to do things in the country. What we have done any farmer can do if he will only look beyond the present crop and build for the future. Dean Vivian, of the Ohio Agricultural College, has well said many times in his lectures, "If you want to make the old farm fatter, stuff it with organic matter." This is what Terry taught and what we have tried to practice. How well we have succeeded is told not only by our increased crops, but the satisfaction we have in knowing that each year the farm is getting better, and by the fact that others come to us wanting to know our secrets, which are nothing more than the application of nature's methods.

Mr. Groupe in one of his Wheat Fields which More than Tripled its Yield in a Few Years

Pennsylvania.

INTENTIONAL SECOND EXPOSURE

Packing Fruit and Vegetables for Market

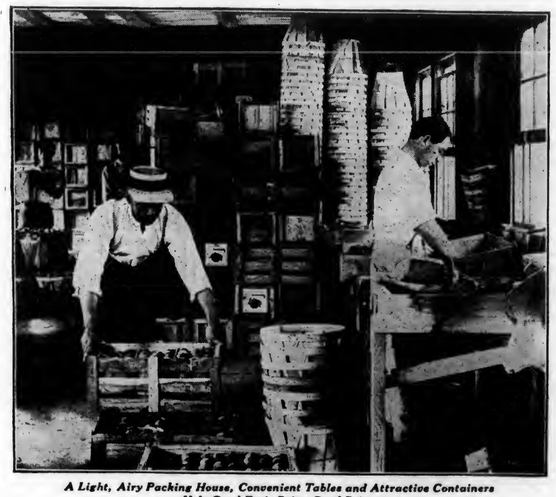
C. C. HULSART

TWENTY-FIVE years ago but very little grading and packing in an attractive manner was practiced. The writer has seen strawberries that today would not sell for the cost of gathering and marketing, picked and sent to market. This method had always been in practice. It had been handed down from father to son for generations, hence was supposed to be the correct way, and is still practiced by many who have failed to keep pace with the times, and the evolution of business. The day is gone when ungraded and unattractively packed fruit and vegetables will sell for anywhere like top market quotations, and it is right that they should not. Why should a grower who produces good fruit, and clean fruit, and then puts it up honestly and attractively, not be paid more for it than the man who offers a conglomerate mass, the half of which would not make good hog feed? In many sections there may be a market for this inferior produce, but keep it separated from the good.

The writer has an intimate friend who specializes on lettuce and cucumbers under glass. This man's first quality lettuce is packed attractively in barrels, the top covered with lace paper. The contents of each barrel are the same from top to bottom. It is sold under a brand name. I have seen it packed repeatedly, and buyers tell me that much of it is sold without being seen, the brand is so well known and the goods so well and attractively packed. This man's inferior grades are not sold under his own name nor in the same market. He is thus careful of his brand and reputation.

A few years back the writer had a crop of fairly nice peaches. This fruit was selling in the customary 16-quart peach basket for 50 to 75 cents per basket. This leaves but little net profit when freight, cartage and all market expenses have been deducted. I was induced to try the Georgia carrier. I did so, and lo and behold, the first shipment I received $1.50 per carrier, with an increase in price as we learned to pack more attractively, until I reached $1.90 per carrier. It takes one and one-half peach basketfuls to fill a carrier. Now, it does not require much of an expert at figures to prove that I was nearly doubling the price by reason of the better and more attractive packing.

Celery that has been nicely grown and blanched will sell better and faster if tied with red tape. The red tape harmonizes with the green tops and gives the bunch a better appearance.



A Light, Airy Packing House, Convenient Tables and Attractive Containers Help Good Fruit Bring Good Prices

Asparagus growers who grow green grass of good size find it advisable to tie with tape because of the better appearance of the bunch. Many more illustrations could be given to strengthen this argument, but all any one needs to do is to familiarize himself with the box apple growth and prices received for the fruit. When a box of fancy apples will sell for as much as a barrel did when packed indiscriminately in barrels there must be something in the way the fruit is selected and packed. Don't let any one think it is because of scarcity of fruit, because there is more fruit per capita now than there was when packed the old way.

This whole subject resolves itself down to this. The American buying public are buying with their "eyes." In other words, the seller must captivate through the eye in order to sell. No matter how good an article may be in quality or flavor, a poorer one more attractively packed will catch the eye and sell for more money. Let any one polish up some nice, well colored Ben Davis apples and pack them nicely in a box. Now take a box of Grimes Golden without polish or pack and display both side by side for sale and see which one sells first and for most money. The Grimes is one of the best flavored apples we have, while the "Ben" is—well make your own comparison.

The writer has just lost money on a crop of asparagus because it was absolutely impossible to find any one that would or could bunch it as attractively as I would liked to have had it done because I know it pays.

New Jersey.

Increasing the Wheat Yield

A. E. GRANTHAM

LARGE yields of wheat are dependent on many factors. The most important of these are kind of soil, the rotation of crops, the seedbed preparation, the proper kind and amount of fertilizers, the time, rate and method of seeding, the variety of wheat and the quality of seed. These factors are so related that their importance must be fully appreciated by the grower in order to get the best results. For example, wheat may be sown later and at a lower rate of seeding on a rich, well prepared soil than on poor land carelessly fitted. Likewise, the proper rotation of crops may lessen the expense of soil preparation. This indicates that a well defined system of crop rotation is necessary if wheat is to be produced economically.

It is generally conceded that a clay loam is the best type of soil for wheat. Stiff clay soils will also produce well if properly drained. Otherwise the wheat plants may be heaved out badly by the winter frosts. On the other hand, very sandy land can be made to produce a fair yield of wheat if sufficient organic matter in the form of green manure or stable manure is incorporated in the soil. The chief difficulty in growing wheat on sandy soil is due to the failure of the soil to hold moisture. However, sandy soil with a good clay subsoil and on which cowpeas or soy beans have been grown as a catch crop and turned under will often produce excellent yields of wheat. The writer has seen a 30-bushel crop of wheat grown on light, sandy land, after a crop of cowpeas, which would not ordinarily produce more than 10 or 12 bushels of wheat per acre. On both very stiff clay soils and on light sandy soils the problem in wheat growing is to get enough organic matter in the soil to change the physical condition. Where a catch crop of peas is plowed under it is well to lime immediately before seeding the wheat, especially if it is desired to get a stand of clover. Often an excessive amount of organic matter produces so much acid in the soil as to interfere with the growing clover.

The fact that considerable organic matter improves the condition of the soil is one reason for a definite system of crop rotation for wheat. Another reason is that this vegetable matter furnishes a large part of the nitrogen which the wheat crop may be able to get. The question of crop rotation is a local one. In general, wheat should follow corn, potatoes or other hoed crops, if the soil in the fields where such crops have been grown is already firm and affords a compact seedbed. Thus a proper rotation of crops will lessen the expense of soil preparation. If the land is very rich, wheat may follow wheat or oats. However, this is not good soil management, as the process will result in soil deterioration in a few years. In some sections of the country the practice is to follow the corn with wheat for two seasons, then hay one year and pasture the fifth year. This method results in reducing the store of organic matter in the soil rather rapidly, inasmuch that the year of pasture often decreases the grass and clover to such an extent that there is very little organic material to turn under for corn. Then the crop of corn and two crops of wheat use up very much of the organic matter which was provided. A better rotation is one of three years, namely, corn, wheat and Red clover. In most of the wheat growing sections of the East it will pay to either shorten the rotation in which Red clover plays a part or introduce some other legume as a catch crop into the rotation so as to provide vegetable matter.

Wheat more than any other field crop, requires careful soil preparation. This is due mainly to the fact that the wheat plant is a delicate surface feeder in its early stages of growth and must have the soil in a condition of fineness so as to permit a supply of moisture near the surface. Hence the necessity for plowing wheat land early so as to conserve what moisture there may be in the soil and to hold what may be added by rains. The earlier the land can be plowed for wheat the better. This will allow time for frequent harrowings which will firm the seedbed and produce a fine mulch on top. Poorly fitted seedbeds are responsible for many of the low yields of wheat. Where wheat follows corn, potatoes or other hoed crops the land should be thoroughly disked as early as possible after the preceding crop is removed, and harrowed at intervals, particularly after each rain, until seeding time. In some sections the practice of following corn with wheat is accompanied by some risk for the reason that the corn cannot be removed early enough to seed at the proper time. Farther delay is also caused by attempting to plow the land after the corn is taken off. If the land is fairly free from weeds disking will accomplish as good results as plowing and considerable labor is saved. If the corn stubble is plowed, as it often is, and then carelessly harrowed and wheat sown, the chances are that the plants will not get sufficient moisture to become sufficiently well established to pass the winter in good condition. Late seeding due to following corn with wheat very often results in low yields. Where late seeding seems unavoidable, due to removing the corn crop, it will sometimes pay to sow the wheat in the corn before the crop is cut. This may be done by the use of a one-horse wheat drill. These drills are in use in many portions of the country and are provided with a grass seeding and fertilizer attachments. Where the land has been kept free from weeds this method of seeding is very satisfactory, providing a drag, such as a mower wheel, is run through the corn just ahead of the drill in order to level the surface of the ground.

The next important factor in wheat production is plant food. Wheat more than any other field crop responds to a liberal application of plant food. Hence, it is necessary that the soil be in a condition to furnish the necessary elements; or they must be supplied by the grower to meet any deficiency. It is well for the grower to understand the function of each of the three compounds which are included in ordinary fertilizers for wheat. Nitrogen gives a rapid top growth, indicated by the dark green color of the plant, while the phosphoric acid and potash function is the formation of the straw and grain. Most soils in the older parts of the country are decidedly deficient in phosphoric acid. Wheat uses up a considerable supply of this element in the production of a crop. For this reason practically all the soils to be sown to wheat should receive an application of phosphorus in some form. Even where land has been well manured during the crop rotation it will pay to use 250 to 400 pounds of acid phosphate per acre in order to get the best results. Manure alone is not a well balanced fertilizer, as it is too low in phosphoric acid. No nitrogen need be used in a wheat fertilizer where the stable manure is applied regularly to other crops or where several legumes are included in the rotation. Experiments at the Delaware Station have shown that it is not necessary to use nitrogen in any form where a rotation containing two or three legumes in four years is followed. The grower, however, particularly this year, should carefully study the condition of his soil, as the price of wheat will warrant the use of high-grade fertilizers

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.

EDWARD T. WALKER, Managing Editor

THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS

W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE

F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES

J. C. Billingslea, 119-123 W. Madison St., Chicago.

A. H. Billingslea, 1 Madison Ave., New York.

A. D. McKinney, Third National Bank Bldg., St. Louis.

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AUGUST 15, 1917

The Housewife's Part

HAVE you women of America thought of the part which that old Number 8 cook stove will have to take in this war to make the world safe for democracy? Upon you rests the responsibility of stretching as far as possible the food which will be produced this year. This does not mean that any one is to skimp or starve her own family; it only means a little thought should be given to our allies and soldiers overseas. The more we can save of the things that can be shipped, and use perishables in their place, the better are our chances of success. Mr. Gerard, our recent ambassador to Germany, in his book now being published in a Philadelphia newspaper, telling the story of his four years stay in Germany, says that there is more danger of starvation of our allies than the central empires. "Every available inch of ground in Germany is cultivated," he tells us, "by the old men, boys and women, and the arable lands of northern France and Rumania are being cultivated by the German army with an efficiency never before known in these countries." The German abhorrence of waste and the thrift with which all household operations are conducted are too well known for us to think that all the food produced is not put to the best use. Wheat is one of the greatest needs of the times, and anything done to save it is an act of patriotism. In the Women's Exchange in this issue a number of our contributors tell how they are supplementing it for the family baking. Experts from the Bureau of Chemistry at Washington have baked forty different kinds of bread, using many substitutes for wheat flour, prominent among them being corn meal, buckwheat, oats, rye, banana flour, rice, Kaffir corn, cotton seed meal, peanuts and chestnuts. All of us can testify having at one time or another eaten other than common white wheat bread, and more often than not we liked and enjoyed it. Now is the time we ought to put aside our finicky ideas and bake and eat the bread which seems to best meet the existing circumstances.

A Billion Bushels of Wheat Next Year

THE Federal Secretary of Agriculture, David F. Houston, has just announced what he calls "the immediate war agricultural program for the nation." He favors planting this fall 47,337,000 acres of wheat and 5,131,000 acres of rye as a safeguard to prevent a serious shortage of foodstuffs next summer in case the growing corn, now behind the season, should be damaged by early frosts.

The billion bushel yield is estimated on the basis of having a spring wheat acreage equal to that of 1917 and a yield up to the ten-year average added to a ten-year winter wheat yield of 15.6 bushels per acre. A yield of one and one-quarter billion bushels would be possible if we had a repetition of the favorable conditions which made the bumper crop in the fall of 1914 and spring of 1915. Should severely unfavorable conditions affect the winter crop an increase of only 10 per cent. in the spring acreage, with favorable growing weather, would add another 30,000,000 bushels.

The Southern States are asked for the largest percentage of increases, although the actual acreage is small. Kansas, which sowed one-fifth of the total winter wheat acreage of the country in 1916, will be called upon to take care of one-seventh of the total increase. Ohio, which has set its goal high this year, is planning for a million and one-tenth acres over last year's sowings. New York and New Jersey are asked for 16 to 20 per cent. increases; Pennsylvania, Virginia and West Virginia are down for 11 to 15 per cent. increase, while Delaware and Maryland are in the 6 to 10 per cent. increase class.

The Secretary tells us that these recommendations have been made only after all the factors have been carefully studied not alone by the authorities at Washington, but by the state agricultural officials and state councils of defense.

The shortage in the fertilizer supply has been considered and also the fact that there is no general shortage in the supply of seed or farm machinery for planting the crop. Ample transportation facilities and a fair established price for wheat are assumed as fixed and satisfactory. Should any of these factors not turn out as planned, however, the Secretary admits that no person can tell what serious effects it may have on the total crop.

At the same time that this cry for greater production is coming from Washington, newspapers tell us that Congress continues debate on the food control bill. What they must think of farmers as a class we cannot tell, but surely they cannot say we are unpatriotic. The crop reports which show increased production on all sides ought to make some Congressmen ashamed of themselves for the little encouragement—in fact sometimes opposition—which they have given to making it worth while to increase production.

"Rescue the Perishing"

THE war gardens are yielding their harvest. Suburban towns and small cities are bountifully supplied with perishables. Authorities at Washington, through all their agencies, are advocating the saving in some form of the surplus of this unusual amount of human food. Canning and drying demonstrations are universal and thousands of pantry shelves are sagging under a weight they have never before been called upon to carry. Prices of farm grown perishables have fallen in consequence, in some cases no market can be found for products which at other times are in good demand. "Can all you can" has been the slogan of the Department of Agriculture for some months, and now they have added to it the timely advice, "eat all you can't can."

One of the lasting benefits growing out of these conditions has been the popularizing of farmers' curb and public markets in cities and towns which have heretofore depended largely on middlemen for their supply of perishables. Carrying a market basket has again come to be looked upon with favor and will no doubt continue after present conditions have passed.

The average American diet embraces only about 14 per cent. of vegetables, and authorities tell us that a 50 per cent. vegetable diet would greatly better the health of our people. A hungry man can eat a pound of meat or a quarter of a pound, and be satisfied, all depending on what he has for the side dishes. This year our city cousins are finding plenty to fill the side dishes.

Only a few years ago we heard talk of a plan for a national advertising campaign by the Vegetable Growers Association of America to educate the consumers to eat more vegetables. We venture that better results are now being obtained than if every daily in the country carried a page advertisement for a week. Thousands are eating the results of their own labor, thousands are eating more because of their labor, and other thousands are eating abundantly because vegetables are unusually cheap and meats unusually high. The regular producers of vegetables can well say, after the American consumer has learned the true value of perishables, "It is an ill wind that blows nobody good."

Uncle Sam Wants Horses and Mules

THE Quartermaster-General of the army a few days ago announced that horses and mules needed for war purposes would be purchased on the open market. This makes an opportunity for any responsible dealer, breeder or farmer who is in a position to furnish any of the various kinds needed. Full particulars regarding the specifications of animals, method of inspection, etc., will be furnished on application to the Quartermaster-General at Washington, or the purchasing officer at any one of the four remount zone headquarters. For the Middle Atlantic States the remount station is located at Front Royal, Virginia.

Our readers should guard themselves against unscrupulous dealers who may represent themselves as government agents, as did one who recently scoured part of Pennsylvania trying to buy horses below their value. We understand that the War Department is paying $170 to $179 for suitable cavalry mounts; $186 to $194 for light artillery horses, and $213 to $225 for heavy or siege artillery horses.

In equipping our first army of a million men it has been stated that approximately 325,000 horses and 100,000 mules will be required. When it is considered that the army has at present only about 70,000 head of horses and mules it will be seen that 355,000 extra ones will have to be purchased within the next few months. Already experienced horsemen have started to the West to buy suitable mounts, but there is plenty of opportunity to enlist some of our good Eastern horses and still more opportunities for the far-seeing breeders who will look ahead and raise the draft horses which will be needed for the world's work after peace has been declared.

Bulletin Helps for Farmers

Housewives who sent for Farmers' Bulletin No. 808, "How to Select Foods, What the Body Needs," will be interested in having the second of this series, covering the subject of cereal foods. It is Farmers' Bulletin No. 817, and comprises 22 pages, which tell how foods rich in starch may be combined with others to form an adequate, attractive and at the same time economical diet.

Because of both profitable prices and patriotic motives, all of us are interested in maximum yields of the cereal crops. Farmers' Bulletin No. 835, entitled, "How to Detect Outbreaks of Insects and Save the Grain Crops," will tell you how to fight the Hessian fly, chinch bug, army worm, corn root aphis and wireworms. It contains 24 pages and is fully illustrated.

Sweet clover recently has been receiving considerable notice as a legume crop for use on our Eastern farms. Farmers' Bulletin No. 797, just received from Washington, is entitled, "Sweet Clover: Growing the Crop." It contains 34 pages and is a concise treatise of the subject which every one who intends to try this crop should have.

Farmers' Bulletin No. 820, "Sweet Clover Utilization," and Farmers' Bulletin No. 836, "Sweet Clover Harvesting and Threshing the Seed Crop," complete the series of over 100 pages regarding this valuable clover, and tell practically everything about it.

Farmers' Bulletin No. 840, entitled "Farm Sheep Raising for Beginners," contains in 24 pages the gist of this timely subject.

Any or all Farmers' Bulletins can be had free by asking the Secretary of Agriculture at Washington for them.

Two bulletins of interest to owners of greenhouses have recently been received from Maryland. No. 205, entitled "Fumigation of Greenhouses," and No. 206, called "The Hothouse Milliped," were both written by E. N. Cory, and are the result of investigational work conducted at the Maryland Agricultural Experiment Station. Horticulturists will be interested in Maryland Bulletin No. 207, treating on "Plum Growing in Maryland," and written by F. S. Holmes. Any or all three of these will be sent free by sending a request to the Experiment Station at College Park, Md.

Spraying calenders for the common fruits have been issued recently by the New Jersey Experiment Station in the form of circulars, as follows: No. 75, for apples and quinces; No. 76, for pears; No. 77, for sweet cherry; No. 78, for plum; No. 79, for peach. Directions are given as to the time to spray, the material to use and the method of application. Copies of these circulars will be mailed free to persons addressing requests to the Experiment Station, New Brunswick, New Jersey.

Cutting Tobacco

D. V. DAVIS.

Forty-nine years ago I began growing tobacco. A few years later I decided that there were certain days better than others on which to cut tobacco for it to cure up nicely and have a rich, "waxy" and heavy body. To find out the way to tell these dates, and to tell them ahead, has been a hard job, but I was finally successful. To explain, let me say that tobacco has an oily substance, which is its natural possession. It also has a sap (water) like other vegetation. When the sap rises it runs the oil out through the pores of the leaves, on the principle that oil and water won't mix, and the oil being the lighter, is pushed out by the sap. Tobacco cut in this state will be light and "chaffy." You see there is nothing but sap in the tobacco, and when cured this sap is gone. It evaporates and leaves the tobacco light and worthless. But to cut tobacco when the sap is down and the oil has full sway, you can cure it up nicely and with a heavyy body; it will be rich and "waxy." This happens because the tobacco is full of oil instead of sap, and the oil can't evaporate, but remains in the tobacco to make it rich and heavy. For instance, you have experienced cutting one week and having excellent luck, and then cut a few days later, probably off the same piece of ground, and with riper tobacco, and have no luck at all.

I shall be pleased to answer any correspondence, through The Practical Farmer, from tobacco growers who may want to write to me.

North Carolina.

Lime Being Used Freely

The use of lime as a soil amending factor is observed in the reports of the Pennsylvania Department of Agriculture covering the first year of operation of the Lime Act, which show that there were 312,948 tons of lime sold under the provisions of the law.

During the past year 219 brands of agricultural lime products were registered and fees amounting to $1095 were collected and turned in to the State Treasury. The lime act does not cover the tonnage of lime taken from the place of production by the purchaser in bulk, and one of the difficult features of the enforcement of the law was to get the small producer to understand his liability.

In the tonnage registration of lime used for agricultural purposes there is no record required from farmers burning their own limestone in the fields and it is probable that almost twice the amount of lime was used on the farms of Pennsylvania as is recorded in the figures reported of official tonnage sold under the provisions of the lime law.

Crimson Clover

The man who has a sod of Crimson or other clover, rye and vetch, or even rye alone to plow down next spring for his corn, oats or potatoes will be in a better position to grow them at a profit than the man whose land lies bare over winter. It has been proved that on a Crimson clover sod a 2-10-0 fertilizer will grow as many potatoes as a 4-10-0. Ammonia, always expensive, has advanced over 50 per cent. in price during the last few months, and next spring, if not practically prohibitive in price, will undoubtedly be scarce and high. Two per cent. can certainly be spared from the ammonia in the fertilizer where a legume is plowed down.

Crimson clover seed is scarce and high this year and some of it is poor. The extension division of the New Jersey State Agricultural College, therefore, recommends that particular attention should be paid to the germination test. This crop has also shown a decided tendency to winter-kill. When germination is poor a larger amount of seed should be sown or some Red, Mammoth or Alsike clover mixed with the seeding. These clovers, being more hardy, also will reduce loss from winter injury. Likewise, early seeding, and the sowing of 3 to 4 pecks per acre of rye or wheat with seedings after August 15, will help to prevent winter-killing. Even when the clover dies in late winter, the nitrogen already gathered and the protection to the soil will warrant its use. Under favorable conditions, such as a fine, moist seedbed and early sowing, a very moderate amount of seed will often give a perfect stand. About 8 to 10 pounds per acre may prove sufficient.

Seeds, Surpluses and Shortages

The committtee on seed stocks of the Department of Agriculture is endeavoring to assist in supplying information as to where seeds may be obtained. To this end it will appreciate information from any one who has seed to offer. The information should contain the name, kind and variety, and approximately the quantity of seed offered as well as the price asked. It proposes to file all such information and to use it in answering inquiries that may be received from various parts of the country. All such communications should be addressed to R. A. Oakley, Chairman, Committee on Seed Stock, United States Department of Agriculture, Washington, D. C.

Protecting Stored Wheat

An entire change in the manner of storing and threshing wheat in Pennsylvania and especially in the big wheat counties of Adams, York, Franklin, Lebanon, Lancaster, Chester and Bucks, is urged by the Pennsylvania Department of Agriculture as a step to prevent an annual loss of almost $4,000,000 worth of wheat through insect depredation. It has long been a custom for many farmers in these counties to place their wheat after harvest in the well-built barns, which are warm and offer ideal conditions for rapid development of the Angoumois grain moth. The farmers of southeastern Pennsylvania should discontinue the practice of storing unthreshed wheat for a long period, but should arrange to have it threshed as soon after harvest as possible. The storage of wheat in the warm barns has caused millions of dollars of loss to the farmer and every year it is causing greater infestation by the grain moth.

If the wheat is known to be infested before threshing, it should be fumigated with carbon disulphide immediately after it is placed in the bin, and this should be made as tight as possible so the gas cannot escape in large amounts. If it is not known to be infested, frequent examination should be made to determine this. Infested grain may be detected by the unusually high temperature which it attains when heating, this being considerably higher than the normal heating process caused by a normal loss of moisture. The barns, granaries and store houses should be kept scrupulously clean of infested grain which remains over the season, lodged in the cracks and crevices of the mow.

Carbon disulphide is used at the rate of 6 pounds (it is sold by weight) to each 1000 cubic feet of space. It may be applied directly by sprinkling over the grain with a sprinkling can or by saturating a burlap sack or cotton waste and thrusting these into the grain in various places. Either of these methods give a rapid diffusion of gas and quickly produce the maximum density which is necessary to kill. Fumigation should be allowed to continue for 24 hours or longer. This will not destroy the germinating power of the wheat if it is dry when treated. Farther, fumigation does not affect the milling qualities of the wheat or impart any taste to the flour. Best results are obtained at temperatures of 70 degrees F. and above; under no conditions, however, should it be used at a temperature below 60 degrees F.

When using carbon disulphide, great care must be taken to keep all fire away, such as a match or a lighted cigar, for the gas is highly explosive, and farther, one should not breathe any more gas than is absolutely necessary while making a quick application.

Increasing Wheat Yield

(Concluded from page 282)

if the other conditions of culture are met. For instance, if wheat is to follow wheat or oats it generally pays to use 3 to 4 per cent. nitrogen in the fertilizer and 10 to 12 per cent. phosphoric acid. Ordinarily when potash is obtainable 2 to 5 per cent. accompanies the mixture. If through force of circumstances it is necessary to seed rather late, it is well to increase the amount of nitrogen in order to get the plants well established before winter. Where a green crop is turned under, or where cowpeas have been cut for hay no nitrogen need be used, merely an application of 300 to 400 pounds of acid phosphate per acre. This point should be kept in mind that well prepared soil sown early will require less fertilizer than one where seeding is delayed beyond the normal time.

The time of seeding is important, as has been indicated above. Thousands of acres each year give a poor yield largely because of late sowing. In the latitude of the Mason-Dixon line the first week of October is late enough for the best results. Farther south and on lighter soils, later seeding may take place. It is well to know, also, that sandy clay soils should be seeded earlier than light loamy land in order to get the same amount of growth before winter. In every case wheat should develop sufficiently to stool out and cover the ground well before snow flies.

The usual rate of seeding is six pecks per acre. If the sowing is done early and clean seed is used this is a sufficient quantity. In some cases seven pecks will be found more desirable, especially if the land is not so well prepared and the seeding delayed. It is quite often that more seed is used than is necessary. The result is a shortening of the heads of the wheat and a diminished yield.

The variety of seed wheat used should be given consideration if the best yields are to be secured. If the grower is not positive about this he should write his state experiment station for suggestions as to the best variety for his section. Careful tests have shown a difference of 5 to 10 bushels per acre in varieties. This difference is enough to pay for a large part of the cost of production. It is better to purchase some of the standard well known varieties than to buy a highly advertised, unknown sort. The seed, whatever the variety, should be of good quality; that is, plump, the kernels uniform in size and free from disease. There is no doubt that with the use of the proper variety of good quality seed wheat that the chances for increased yields may be greatly improved. These are some of the factors which the wheat grower should consider in planting for the crop of 1918.

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Items for Orchardists

Fruit for the Future

F. A. KUHN.

Fruit and nuts are going to be important foods in the future. We should do our utmost to increase the supply. The planting of fruit trees is a necessity that should not be delayed. The fact that it takes a few years to grow a producing tree is all the more a good reason why we should look to the future. We need have no fear of over production, as that time is past.

The demands this country will have to meet from the European countries after the war will last many years. The fruit trees of northern France, Serbia, Belgium, Roumania, Galicia and Russian Poland have been entirely destroyed, while the orchards of the other countries at war have been neglected. Is it therefore not plain that it behooves us to get started for an extra supply of fruit and nuts? No one knows when the war will come to an end, and the longer it lasts the greater our supply should be.

While the farmers of this country are using every bit of spare land for crops, there are others who could plant trees. Take the poultry raisers, for instance. Fruit trees planted in the poultry yards would benefit them greatly. Besides bearing fruit, the hens will enjoy the shade of those trees and the young stock will mature quicker in a shaded run than in a sunny one.

When planting trees in the poultry yard the writer found it is necessary to prepare the root beds before attempting to set the trees. The soil in a poultry yard is very compact, and the pores of the soil are closed. This is easily understood when we consider that whenever it rains the yard is in a very muddy condition. The drainage is at fault. To plant trees large and deep holes must be made and refilled to the required depth. The writer when planting his trees a few years ago, used dynamite to blast the holes. A half stick of 20 per cent. dynamite was used for each tree hole. The blasting saved a greater part of the labor and time that would have been consumed if the holes had been dug and not blasted.

It was not necessary to make the holes any larger than to accommodate the roots nicely. The blasting made the soil porous, much more so than if large holes were dug. It also corrected the soil's condition by giving it good drainage. Blasting holes for trees, while it creates proper drainage, also creates a water storage in the subsoil and this water is returned to the tree during its growing period. When planting the trees put the top soil under and around the roots; this will give them some good soil to start off with. Trees planted in blasted holes make a great headway and begin to bear earlier than trees planted otherwise. A few trees planted this year will mean much to the producer, the consumer and the country.

New York.

Orchard Cover Crops

Increasing the supply of humus in the soil is the chief benefit of orchard cover crops, according to the Cornell College of Agriculture.

Rye is one of the best cover crops; it lives over winter and should be plowed under before the last of May. Oats, buckwheat, and Canada peas, or a combination of these, make a good cover crop. Dwarf Essex rape makes a good cover crop; the seed is cheap and its enormous root growth greatly improves the physical condition of the soil. It remains wet throughout the day in a good growing season and may thus make trouble for the pickers. Among legume cover crops winter vetch is the most important. It grows rapidly, improves the soil and increases the nitrogen supply.

The following approximate amounts of seed are used with each acre of cover crop: Barley, 2 to 2½ bushels; buckwheat, 1½ bushels; Red clover, 10 to 15 pounds; Crimson clover, 15 to 20 pounds; oats, 2 to 3 bushels; peas 2 bushels; rape, about 5 pounds; rye, 1½ to 2 bushels; turnip, 4 pounds; vetch, about 1 bushel.

Of course, where oats and peas are used together about one-half of the recommended quantities of seed should be used. In the case of winter vetch a good combination is about 20 pounds of winter vetch and 1 or 1½ bushels of oats or barley.

Spray for Codling Moth and Blotch

This year it will probably be safe to spray for codling moth until the middle of August, in the opinion of C. H. Hadley, Jr., extension entomologist at the Pennsylvania State College. Use arsenate of lead at the rate of three pounds of the paste or one and one-half pounds of the powder in fifty gallons of water. Special care should be taken to spray the fruit as thoroughly as possible.

The worms of the second brood of codling moth enter the fruit usually through openings made in the sides. If the surface of each apple is covered with spray material the little worm will be killed from the poison after the first meal.

Apple blotch and sooty blotch of apples can also be combated by spraying at this time. Apple blotch appears at first on fruit as small light-brown specks which gradually enlarge and become darker in color. This disease also affects the fruit spurs, twigs and growing shoots, appearing as cankers. Sooty blotch (also known as fly speck) appears as irregular-shaped sooty blotches on the skins. The fly speck stage appears later in the summer as groups of small, shiny, black dots closely resembling those made by the fly. Spraying with lime-sulphur at the rate of about one and one-half gallons to 50 gallons of water will be effective for both of the diseases mentioned. Where home-made lime-sulphur concentrate is used it should be diluted to a density of 1.01.

It is desirable frequently to spray for both codling moth and the diseases mentioned at the same time. This can very readily be done by adding the required amount of arsenate of lead directly to the lime-sulphur solution.

Honey Prospects

Beekeepers throughout Pennsylvania report a light crop of white honey to the Department of Agriculture. Many apiaries have secured a fair crop, but there will not be a large supply get beyond the local markets.

The weather during the spring and early summer was unfavorable for honey production, but the beekeepers who gave proper attention to their bees have secured a paying crop. Many hives were left unprotected from the cold last winter and colonies headed by failing queens have failed to produce on a large scale during the spring.

A large acreage of buckwheat has been sown and prospects from that source are good. Golden rod, asters and other fall nectar flowers are in fine condition. If the present favorable weather conditions continue, the fall crop of honey will be much larger than the early summer crops. The Department of Agriculture urges more interest in honey production and Zoologist J. G. Sanders is giving more attention and more aid to the industry than has ever before been undertaken in the state. Every orchardist is urged to have several colonies of bees in his orchard and to make beekeeping a side issue.

Nursery Agents to be Licensed

The new nursery inspection law recently signed by the Governor of Pennsylvania will enable the Department of Agriculture—through the Economic Zoologist—to co-operate with the fruit growers in eliminating undesirable nursery stock from the state.

Under this law all persons, including nursery dealers or agents, soliciting for the sale of nursery stock in the state, must secure and carry with them an official license issued at Harrisburg. Penalties for noncompliance with this regulation are provided, and wilful misrepresentation of nursery stock offered for sale is a misdemeanor.

Citizens of Pennsylvania should avail themselves of this law, and report any suspicious actions on the part of nursery agents to the Economic Zoologist, Harrisburg.

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How "Bunch" Labor Fills Silos

JOHN UNDERWOOD

In my community practically every farmer has one or more silos and in filling them the "bunch" labor question has nicely adjusted itself. We have our own silo filling machinery and work cooperatively. We have gathered into groups sufficiently large to allow four teams in the field, two or three extra men to help the teamsters load in the field, a couple of men to feed the ensilage cutter and two men in the silo. With us everything at silo filling time moves like oiled machinery. We used to cut the corn with corn knives, but for the past few years I and two of my neighbors have owned a corn binder cooperatively and we now would not be without it. It does its work with neatness and dispatch and binds the corn into bundles convenient for handling and for feeding into the ensilage cutter. In our silo filling circle the man on whose farm we are working supplies the horses and the driver for the binder.

We cut the corn when the grains are well dented and the husks and lower blades begin to dry. In our experience we have found that silage made from corn cut at this stage is much better than that made from greener corn. In hauling the corn from the field to the ensilage cutter we use low wagons with wide, flat racks with a standard on the rear end of the rack. As a general rule, we feed the corn to the cutter tassel end first. The only exception to this rule is when the men in the field make a mistake and load the wagon the wrong way. The corn is cut about one-half inch in length. If cut in longer lengths the mass cannot be tramped so as to exclude the air and the silage will not keep as long. We keep the knives of the machine sharp enough to make a clean cut at every revolution. When the knives begin to get dull the husks will be blown up uncut, although the ears and stalks will be cut nicely. It is hard, active work to feed the cutter fast and properly, too hard for one man to stand for any length of time. According to our system the two men take turn about at the feeding and while one is doing the main work the other gathers up the loose stalks and trash and feeds it into the cutter and with the help of a boy to turn the grindstone, or some kind of power, keeps the knives sharp.

The distribution and packing of the silage must be properly done. We have a distributer fixed at the end of the blower tube. Thus the silage can be directed to any part of the silo. With the best distributer, however, there is a tendency for the heavier portions of the corn to pile up together while the lighter portions are blown to one side. Were this corn not forked over properly and mixed the silage would be of uneven quality and would settle unevenly.

We do things in our circle so that each man's corn is all cut and put in the silo at the one operation. We never go to the same farm twice in the season. As all who have silos know, however, silage will settle several feet after the first filling, and that much storage capacity is wasted. Where one has twin silos this difficulty may be overcome to a certain extent by shifting the blower back to the first silo after the second one has been filled. Most of us, however, have only one silo. I have gotten around the difficulty by building a cheap wooden top on my silo extending 6 feet above it. This top is cheaply constructed without any attempt to make it airtight. The corn is filled in right to the top of the superstructure and in a few days it has settled down within the bounds of the silo. My way of making the silage keep at the top of the silo when it is filled is to spread a good layer of finely cut straw over it, and then sow oats on the straw and dampen them.

Illinois.

Growing Sweet Corn Only

E. G. McCLOSKEY

A successful plan of single crop farming has been worked out by F. O. Mitchell & Brothers, of Maryland, as far as sweet corn production in their section is concerned. They own 500 acres of sassafras loam soil which is naturally suited to the production of sweet corn. At the same time they are canners of sweet corn in large quantities, handling the output of 1100 acres. They want lots of sugar corn and naturally want to produce as much as possible. This has led them to devise a plan for single crop farming so that they might do away with the subsidiary crops, which brought them no profit, and concentrate on the money crop.

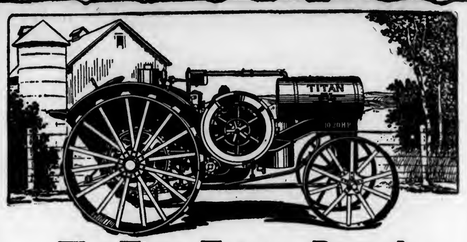
Growing sweet corn year after year would soon mean decreased yields unless special treatment was accorded the soil, which in this case takes the form of plenty of high-grade commercial fertilizer and Crimson clover to plow under. Some little manure is available from steers fed on corn silage and stover, but only enough to cover the land thinly, once in seven or eight years. One thousand pounds per acre of high grade complete fertilizer is used every year. Five hundred pounds is applied broadcast and the other 500 is sown in the drills. The first application under normal conditions runs high in phosphoric acid with moderate amounts of ammonia and potash. This application usually consists of what is known as a "half and half"—that is, containing about one-half bone and the remainder a standard complete fertilizer. The second application contains less phosphoric acid and more potash and generally analyzes about 2 per cent. ammonia, 8 per cent. phosphoric acid and 10 per cent. potash.

Each year one-half the acreage—the early planted half—is sown to Crimson clover, which is plowed under the next year to be planted to the late crop. Under this treatment the soil has improved from year to year, and the tonnage has increased. Little manure, and that little produced where no roughage other than corn is used, has not tended to increase the weeds as is the case ordinarily on continually cultivated land. As a matter of fact, the weeds have been lessened. This, too, is a big factor where 500 acres of a cultivated crop are to be handled.

By using large quantities of high-grade fertilizer the soil is in excellent shape to receive the Crimson clover seed. About 75 bushels of seed is used each year, and Mr. Mitchell says he has never failed to get a stand. He also added with enthusiasm that a number of years ago, when he started his present plan for growing sugar corn continuously, his neighbors laughed at him and told him the first dry season would burn him up. He said his plan had so restored the organic matter that it has had the opposite effect and cited one year recently when he harvested a crop which had no rain from the time it was planted until it was pulled, and was a success.

A field in sugar corn this year for the thirteenth successive time, is in fine shape and a perfect stand.

Maryland.



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Housing and Feeding Poultry

J. T. BARTLETT

The superior profit records of small flocks, as compared with large ones, have long been recognized. Hens do better when kept in small units, and for that reason the poultryman who has decided to keep 75 to 150 hens and must build accommodations, should, if he has plenty of room and a little extra capital, build several colony poultry houses instead of one. Caring for a flock thus housed, he will find labor a little heavier, and that more land is taken up, but he will be pleased with results. In at least a score of instances under the writer's close observation, the colony system is eminently profitable; and he does not know of a case when, given reasonable attention, hens have not laid well under it.

Construction costs will be only a little higher. Consider, for example, the merits of the staunch but cheap "A" house, the ground measurements of which are 8x8 feet and which comfortably shelters 12 to 15 hens. This house is 8 feet high, and the roofs slope to side walls 2 feet in height. The back is solid. The front is entirely open, except for the framework of a hen wire door. There is no window. The nests and grit and shell boxes are on the side walls. The roosts are across the back. The house may be covered with roofing paper, or shingled, as the builder desires. Simplicity is the keynote of this house, and it is cheap. The cost per hen is far below $1.

The writer has seen this cheap "A" house in use in city back yards, on many farms, and on large farm enterprises where thousands of hens were kept, and he has never heard an unfavorable word concerning it. In many cases the front is left open the year round. Moreover, the house is portable. It can be shifted from place to place as desired.

The best word I ever heard for it came from a farmer who kept 130 hens in five different types of poultry houses. One was of the well-known Tolman style, and housed 40. One was the "A" house I have described. The three others were of the shed-roof class, all different in details, and accommodated 25 each. He bought all these houses second-hand in his town, and on the writer's visit had used them six years.

"If I was to build hen houses now for a large flock," he said, "I would have every one just like that "A" house. I have kept pullets, old hens, Rhode Island Reds, Leghorns and Wyandottes in it, and always that house had a higher per cent. of egg production every winter than the other houses."

The colony poultry house does not have to be complex of construction to be efficient. Here is another house, somewhat costlier than the "A" house, yet cheap, which is designed for 35 to 50 hens, according to the variety kept. Its floor measurements are 10x15 feet. The back wall is 4 feet high, the front, which is largely open, 3 feet. The house is 6 feet high at the ridge pole. In one side of the house there is a window, and in the opposite side a door. Using roofing paper for covering, this house costs less than $50. If desired, it can be erected on posts 3 feet high, enclose the space beneath with hen wire, put in a runway, and have a scratch yard for each individual flock.

Other conditions being equal, egg production is always higher in flocks kept under the colony system, which has several incidental advantages. Disease can be checked before it has spread far. The owner develops the egg-laying capabilities of his strain easily yet efficiently by hatching eggs each season from the house which has laid the best. Keeping hens in several units, the poultryman always gets to know his hens better. If he lets different units run at large on different days, all have an opportunity to scavenger.

MIXING FORMULAS.

In preparing the dry mash, commercial poultrymen generally use the grain room floor. Clearing a broad space in the center and sweeping it clean, they spread fairly thinly a bag of one constituent, bran for example, then on top of it empty something else, say middlings, then a half bag of meat scraps, and so on until the entire formula is in the pile. When two bags of a kind are used, one bag is emptied near the bottom and the other near the top. Finally, the mass is thoroughly mixed with a shovel.

Some commercial poultrymen prefer to mix only a little mash at a time, enough for one or two feedings. These keep the several constituents in different barrels and use a box in mixing, pouring grain with a 6-quart pail or similar utensil. Their formula is made to read in terms of pails, scoops or wooden grain measures.

Mixing the scratch feed, fed mornings and nights, or nights only, is much simpler because most formulas call for only two, or at most three different grains. If grain chests or bins are used, it is simple enough to dump in first a bag of one grain, then a bag of another, and to mix with a shovel. But not all poultrymen consider this the best way.

One successful keeper of 1000 hens, using three long hen houses, does his grain mixing as he feeds His formula is two parts corn, one part oats and one part wheat. He has small grain rooms in each house, and keeps in these, barrels full of the three grains. He delivers to these grain rooms with a horse sled or wagon. He carries feed in a 12-quart wooden pail of the kind used by candy manufacturers. With a small scoop he fills one of these according to formula, stirs the grain into a thorough mixture, and walks through the pens scattering grain with the scoop. Arriving at the next grain room, he refills the pail.

"I don't waste much labor or time by this method," he told the writer, "and another point in its favor is that it allows me to alter the formula easily at any time. When weather is very cold in winter, I consider it very important to feed at night three parts of corn instead of two. The hens need that extra heat."

There are experts nowadays who, by studying skilled laborers at work, detect waste motions, eliminate them, and thereby double efficiency. The poultryman ought to study just as critically his method of mixing and distributing mashes and scratch feeds. He may be able to make short cuts which will reduce labor by 5 or 10 per cent., or even more. When houses are very long, it is often a time-saving advantage to have more than one grain room. Transport as much grain as you can by horse and sled or wagon.

New Hampshire.

Lice Cause Poultry Losses

At this season lice cause a tremendous loss to both chicks and hens. They breed much faster and hence do greater damage during the summer months.

Most fowls are afflicted with lice. While a few may not injure the bird, a great number may cause constant irritation and possible death. This constant irritation causes the bird to appear drowsy and unthrifty, and later to stop producing.

Lice may be readily found where bodily temperature is warmest, under the wings and near the vent. On young chicks the lice may appear first on the head, causing it to become bald. Prompt treatment of such cases with vaseline or lard prevents spreading of the lice.

Fowls should be dusted regularly to prevent lice from obtaining a foothold. Holding the bird in the left hand, by the legs, head downward, opens the feathers more or less, so that the powder sifts through them easily.

Dust the bird thoroughly and work the powder well into the feathers by rubbing, especially under the wings and around the neck and vent. If a cloth is placed under the bird to be dusted, one can easily collect and use a second time powder that would otherwise be lost.

A good lice powder is composed of three pints of gasoline to one pint crude carbolic acid, to which is added about eight parts Plaster Paris. The Plaster Paris should be poured in slowly and thoroughly mixed until enough plaster has been added to form a dry brownish powder. Gasoline is very inflammable, hence it should be kept away from fire.

Fowls may also be freed from lice by dipping them in a 5 per cent. solution of the coal tar disinfectants. Care should be exercised to protect the fowl from taking cold after dipping. Dipping is not used very extensively. Blue ointment is frequently recommended as a remedy for lice. A piece the size of a garden pea should be thoroughly rubbed into the bird, around and under the vent.

Several applications of any remedy are necessary to kill the young lice as hatched. Birds should be dusted two or three times during the summer at intervals of a week.

Not only should the hens be well treated, but the hen house—the home of the hen—should have a thorough housecleaning. Droppings should be removed at least once a week. The nests and roosts should be sprayed often with coal tar disinfectants to insure cleanliness.

Do not allow little chicks to occupy disinfected coops for at least twenty-four hours. The fumes arising from the application of coal tar products will kill the young chicks, but will not be sufficiently strong to injure the old hens.

These instructions are given by H. C. Knandel, in charge of poultry extension at the Pennsylvania State College.

Limberneck—a Peculiar Disease

Limberneck is really not a disease but a very definite symptom that chickens have been feeding on putrid and decaying flesh, or maggots from same. There is no better proof that chickens, if given the chance, are filthy feeders than the fact they will never pass by a chance to feed on the above.

Therefore W. Theo. Wittman, poultryman with the Pennsylvania Department of Agriculture, asks that farmers and all others keeping chickens, diligently search for and remove all dead fowls or small animals, the two most common sources of rotting animal matter.

The most common remedy is turpentine mixed with some bland oil like olive oil. Two or three drops of turpentine for a small chicken; 12 to 15 drops for a large, adult fowl. Must be used promptly, the bird or birds removed to a quiet place and only soft food like bread and milk fed for a day or two.

Limberneck is so called because fowls affected lose all control of the muscles of the neck, so much so that they will frequently drag the head on the ground.

The annual Field Day at the New Jersey Experiment Station will be Thursday, Sept. 6th. Plan to be present.

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30x3½	6.00	34x4½	8.50
32x3½	7.00	35x4½	9.00
33x4	8.50	36x4½	9.00
34x4	8.50	37x4½	10.00

We also carry a complete stock of Double Tread Tires—which we guarantee at these low prices:

Sizes	Price	Sizes	Price
30x3	$6.50	36x4	$11.00
30x3½	7.50	34x4½	12.00
32x3½	8.50	35x4½	12.00
33x4	10.50	36x4½	13.00
34x4	10.50	37x4½	13.50

Add $1.00 to the above for Non-Skid Tire

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Eight varieties—smooth and bearded sorts—graded—sound cleaned clean—*free of rye, cockle, garlic, chess, smut.*

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Describes varieties — tells How to Get a Crop of Wheat" —offers other farm seeds. It is free—with samples—if you tell where you saw this offer. *Write for it today.*

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Seeding for Grass

OUR EXPERIENCE POOL

We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1226, SEPT. 1.—Winter storage of root crops. Tell us in not more than 250 words how you save and protect vegetables for later use. You can tell how you save beets, pumpkins, etc., for the live stock, or turnips, potatoes, etc., for home consumption or the market.

TOPIC No. 1227, SEPT. 15.—What use have you made of steel and concrete in your cow stable? How much have you spent for these two materials, and do you think it was a profitable investment. How many cows do you have? Did you remodel your old cow stable or build a new one?

TOPIC No. 1228, OCT. 1.—How have you solved the problem of disposing of the sewage from your bath, toilet and sink? How much did your system cost to install and what have been the results? Tell us in not more than 250 words what you know of this subject.

W. G. Y., Lexington, N. C.—Many farmers look upon the grass seeding as only incidental to the grain crop that it is seeded with, but with us the grass seeding is a crop by itself, and a very important one, too. We usually try to follow a hoed crop with grass. The land for grass is broken during early August and a seedbed prepared that is firm and fine enough to nurse the tender grass plants once they are sprouted. We apply a ton of fine ground limestone per acre with the manure spreader during the preparation, as most of the soils in our section are acid to a certain extent. We seed during late August or early September, a mixture of timothy orchard grass and rye grass in equal proportions, at the rate of 30 pounds per acre, seeding from the grass seeder on the grain drill and applying 200 pounds of acid phosphate per acre at the same time. The grass seed and the phosphate are both dropped on top of the ground from the drill and then covered with a light harrow that covers the seed to just the right depth. The thorough preparation usually gives a season for seeding and by fall our grass is ankle high and about as thick as it can stand on the ground. Early the following spring we either top dress with six or eight tons of well rotted manure from the manure spreader, or a hundred pounds of nitrate of soda broadcasted. The top dressing with manure is kept up each spring and occasionally supplemented with some fine ground bone meal. We get two cuttings of the finest quality of hay and a considerable third growth for a winter protection. The essentials for a good grass seeding, from our experience, be summed up in a few words—thorough preparation, heavy seeding and adequate fertilization.

G. H. D., Warrenton, Va.—I prefer to sow grass early and alone on a well prepared seedbed, rather than with a winter grain as a nurse crop. The main thing is to sow the grass early enough so that it will make abundant growth to cover the ground and to allow the crop to weather the period of cold weather without winter-killing

I plow early and deep, working the field with a double disk harrow as often as possible during the summer to keep the surface mulched and to get the soil into good tilth. Early plowing gives the field plenty of chance to settle and compact before the seed is sown, and I farther this work by the frequent use of a drag and roller.

On upland I like to sow a mixture of timothy, tall meadow oat, meadow fescue and orchard grass, as where some of this grass falls there still will be sufficient remnant to assure a good sod in a favorable season. I find that usually a mixture of 8 quarts of the timothy and fescue, and about ½ bushel of tall oat and orchard grass to the acre is sufficient. On low lands that are at all wet I seed timothy and red top, a 10-quart-to-the-acre mixture of equal parts of these seeds. As early the following spring as possible I run a drill over the field and sow Red and Alsike clover on the upland and Alsike clover alone on the bottom land. On all land that is adapted to alfalfa I also seed 5 pounds to the acre of this seed each time I plant grass, as in this way I get my fields inoculated for alfalfa.

I always get my grass seeded by the latter part of August and use a disk grain drill without pressure, followed by a brush harrow to cover the seed. Sometimes I use a wheelbarrow sceder followed by a scratch harrow to lightly cover the seed, although I like the grain drill the better of the two. I sow grass only on fields that have been limed within the last two years with one to two tons of ground limestone or one-half ton of burnt lime to the acre, preferably the former material, because it is not so exhaustive of organic matter. I sow 350 pounds of 16 per cent. acid phosphate per acre with the grass seed and during the winter I always top dress the new seeding with stable manure reinforced with raw rock phosphate. As soon as the seed is sown in the fall I like to run a pulverizing roller over the field to induce the rise of capillary moisture and to compact and also mulch the seedbed.

B. L. H., Alpine, Ky.—The help question is serious here. During the last ten years have been trying to get most of my tillable land in meadow to save labor. Rough lands are in permanent pasture. I always seed with oats on fall plowing, using 2 bushels of grass seed on 6 acres. Mixtures vary. Usually timothy and Red clover on upland; timothy, Red clover and Alsike on wet lands—always half timothy with some alfalfa added.

Have tried most all schemes for fertilizing. I draw my manure directly from the stable and spread by hand, as it is not practical to use a spreader here. Manure on fall plowing gives the best results, but also gives the weeds a better chance. Used on the new seeding, it is bound to smother some; also, the wagon cuts up the land. The best place, in my opinion, for the manure is on old meadows. It will double the hay crop for one year; then plow and plant to corn and potatoes, followed by fall plowing and seeding with oats.

On my soils, ground limestone with the manure will produce four times the hay in average years that manure alone will. Also it will be mostly clover the first season. Manure alone here will not produce clover in paying quantities. Acid phosphate with manure gives fine results on heavy, black gumbo and clay lands, as they are not quite so sour as some of the uplands. Wet weather or open winters will kill alfalfa on the low land meadows. Alsike responds to acid phosphate wonderfully.

I have come to the conclusion that the quickest way to get land in shape is to spread, say, two tons of ground limestone on an old meadow, top dress carefully, cut hay one year, plow for corn, and seed the next year with oats, using all you can afford of acid phosphate or basic slag.

E. A. B., Delevan, N. Y.—As we do not raise winter grain in this section I always sow grass seed with oats, using three-fourths timothy seed and one-fourth Alsike clover, and think 10 quarts to the acre about right. On one occasion, owing to a lack of seed when we were drilling a large field, the drill was set for 6 quarts for the last three-quarters of an acre and there was no noticeable difference in the grass nor in the seeding running out.

I believe in top dressing meadows, and through the winter and early spring manure is drawn out every day and put on the grass land as thinly and evenly as possible. When lime is used it should be put on before sowing. Acid phosphate is put in at the time of seeding.

R. B. R., Ozark, Ill.—I have found that it is very easy to always secure a good stand of grass if it is done right. I presume I have tried every way that a fellow could, almost. Have finally settled down to just one simple, easy way, and have never had a failure yet.

Where I want grass, I always sow oats in the spring. There is no use to sow grass on poor land, so the question of fertility need not be considered here. It must have attention before the grass is sown if we expect any pasture or hay.

In sowing the oats I prepare the ground thoroughly and drill the oats, using only one bushel to the acre, and run the rows north and south. Now, it is easy to see the point if you only think a little. The oats being rather thin and the rows running north and south, the grass gets the benefit of the sunshine all spring and until the oats are cut, and then when they are removed the grass or clover is in a position to stand the hot sunshine, really the very thing it needs. Without a nurse crop other growth comes up on rich land and crowds the young, tender grass plants. I have never taken to the idea of summer fallowing land to sow grass in summer and fall. I have tried it, and my experience has been that it is harder on the soil to lie fallow than to grow the oats, and besides, I have the grass firmly established before the cold of winter. Half the time your late sown grass will be so young and tender that it will winter-kill.

By sowing only on fertile soil and as above suggested with the oats, you are practically certain of a good stand of grass, and I have often mowed a good crop off the field late in the season after the oats were cut, when the season is pretty rainy. Just try it.

A. J. L., Albion, W. Va.—I find it best to sow grass with wheat if sown in the fall, but for any ground that I put in buckwheat I always arrange to sow grass. The buckwheat crop is the best crop with which to get a good stand of grass or clover that I ever tried. There are no weeds and only a light stubble left on the ground after the buckwheat comes off, so the grass is left in full possession of the soil. I sow about one gallon of timothy seed per acre and usually include one quart per acre of clover seed. I prefer the Mammoth clover to be sown with the timothy, as they are both ready for harvest about the same time. One objection to sowing grass with either wheat or oats is that the weeds usually spring up and injure the grass after the grain is harvested. This is not the case when grass is sown with buckwheat, as it is harvested too late for a crop of weeds to grow. I practically never fail to get a stand when I sow grass with buckwheat.

C. E. D., Cumberland, Md.—After repeated trials, and observation of other farmers, we get a good stand of either grass or clover by the following methods: For timothy we sow the seed alone in potato ground, or prepared soil, during the spring or summer, and do not graze it during the winter. For clover we sow the seed amongst growing rye or wheat from the first to tenth of March. Either earlier or later than this invites failure, or a thin stand It is sown broadcast, each kind alone, pure timothy or pure clover We invariably use the Medium Red clover at the rate of 10 pounds per acre. The hay field is fertilized in winter by spreading horse and hen manure, while the growth is dormant.

D. W. S., Grove City, Pa.—For sowing grass seed we sometimes sow in the spring on oats, and sometimes on rye or wheat in the fall. The plan seems to work both ways, provided you follow with a top dressing of manure applied with a manure spreader if the ground is favorable to do so. We sow from 7 to 8 quarts of mixed clover and timothy seed per acre in the spring on oats. After the oats are harvested we follow with a coat of manure and find it pays when cut the next spring. If we seed with wheat or rye we don't sow the clover until the spring. We find it pays best to follow with the roller when the ground is fit after seeding. We have not had experience, but one of our neighbors fitted his field for wheat and rye but did not sow anything except clover and timothy, and had the best crop of hay in these parts the next season. The best way with us is to seed with rye in the fall instead of with wheat. If top dressed with manure we have a permanent grass catch. We sometimes use a 12-foot grass seeder, but prefer our hand for distribution.

These surprising verses come to the Editor's desk from the author. We confess the imaginary aspect of honey production set forth in the final stanza had never occurred to us. Query: Will the publication of this inaugurate a movement for the sanitation of the hive and the washing of bees' feet—and who can the washing be done?

THE BEE.

S. O. H.

The bee's a bird with feathers few,
He lacks a feathered tail:
But something where the tail ne'er grew
Keeps people off his trail.

He's homely, though his product's sweet,
For he romps among the flowers,
Extracts the nectar clean and neat
To store in waxen bowers.

Though he packs his product firm and light
With his unwashed feet,
It never turns man's appetite
His liquid gold to eat.

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Every modern farmer appreciates the urgent necessity for use of fertilizers in these days of high prices. We have published a booklet containing brief statistics showing benefits derived from the use of Acid Phosphate and Nitrate of Soda. YOUR COPY IS READY FOR YOU—WRITE FOR IT.

WRITE FOR THIS BOOKLET

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Note how sturdy she is built, please. In designing her we had in mind durability, simplicity and practicability. Comes fully equipped with acre-mark, indicator, screen, lid, seat, neckyoks, double and single trees. FREIGHT PREPAID. A dependable spreader at a low price.

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The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

SEPTEMBER 1.—How do you make coffee? What variety of coffee do you buy, what price do you find it necessary to pay for satisfactory coffee and what suggestions can you give our readers who are dissatisfied with their cup of coffee, to improve upon it?

SEPTEMBER 15.—Economical griddle cakes will be popular this year. How do you make good ones out of corn meal, rice, etc.? Don't confine yourself to what we can find in any cook book, but give us some ideas which will be helpful to other housewives. What do you find best to serve over them?

OCTOBER 1.—If you put up more preserves, jellies, canned and dried fruits and vegetables than you need for home consumption, how do you market them and what prices do you propose to charge this year? How do you pack them for shipment? We feel that many farm women have prepared to meet the town demands for preserved food supplies this winter and will welcome the experience of others as to methods of marketing and packing and prices to ask.

Get your contribution in early. It it does not reach us at least 15 days before the date of issue, it will be too late.

Wheat Flour Economy in Baking

Mrs. L. E. E., Claysville, Pa.—Yes, I have made changes in my baking since wheat flour has advanced We buy all our flour, therefore for our own welfare I have changed methods. It is our individual duty to stand behind our government, which is asking us to conserve our foods. We are not true soldiers if we do not strive to "do our bit."

I use a great amount of graham flour and find it more nutritious than the white flour. If not at first relished, just keep eating it; the taste will be acquired. I have never tried rye flour but have used barley.

My best receipt for graham gems is, 2 cupfuls sour cream, 1 teaspoonful salt, ½ teaspoonful soda, 1 tablespoonful sugar, 3 cupfuls graham flour, or 1 cupful white flour and 2 cupfuls shorts or fine bran, 1 teaspoonful baking powder mixed in dry flour; butter milk can be substituted for cream; then add ¼ cupful shortening; also if wanted for sweet cake, more sugar or baking molasses may be added. One-half cupful of raisins or currants are fine added to either the sweet gems or the plain. I also add spices, sometimes one kind, then another —ginger, nutmeg, cloves, allspice, or cinnamon, ginger and cinnamon preferred with the plain gems.

To make yeast bread with graham flour use 1 part graham to 2 parts white flour. Too much graham makes bread too heavy, dark and not so appetizing. I mix my sponge with white flour then divide and make a portion of it graham and the rest white bread, often adding nuts and fruits to a portion of the graham dough. This I bake in baking powder cans and use for sandwiches. These are especially fine for school lunches or picnics

We also use corn bread more frequently than heretofore. No less than one day each week. I think this my best receipt, as it is economical as well as good to eat: One and one-half cupfuls corn meal, ½ cupful flour, 1 teaspoonful salt, 1½ tablespoonfuls sugar, 2 tablespoonfuls shortening, 3 teaspoonfuls baking powder. Place all dry ingredients in mixing bowl except baking powder and flour; add shortening, melted, then milk, beat well. Have oven ready and pans well greased; then stir in baking powder and flour well mixed. Bake in hot oven. White corn meal is very nice occasionally; also baked in muffin pans gives a variety and change.

Miss I. E. B., Franklinville, N. Y.—Since flour has advanced in price we often make our wheat bread of part corn meal. Some of the family like it better than all white bread. We set the sponge the same as we do for white bread, and when light enough to knead into a hard loaf we add a quart of luke-warm water, about a quart of corn meal and knead it, setting it to rise again, then put it into tins and bake as we do the white bread.

We use graham flour sometimes with wheat flour in making yeast bread, but like it best when made of graham flour alone in a butter milk loaf.

White bread made of wheat flour alone and made with yeast, is our best bread, and we never tire of it. Workmen often praise our bread made as follows: Put into a 2-quart basin one quart of luke-warm water, a handful each of salt and sugar, a yeast cake (soaked soft) and enough wheat flour beaten in to make a thick, smooth batter. Set in a slightly warm place to rise. When light we take a large bread pan (our family is a large one) and put into it the amount of flour needed, making a hole in the center, putting in a heaping teaspoonful of shortening and a quart of luke-warm water, then adding the sponge and mixing together well, then knead in flour until dough does not stick to hands; we leave it in a large loaf and set it to rise again.

We mold it into loaves when light, using very little flour this time, then set again to rise and bake about an hour in a moderate oven.

B. N. S., Sidney Center, N. Y.—At present we are advised to use other cereals in place of wheat, as much as possible, so I am sending these receipts in which rolled oats and corn meal are substituted for a part of the flour.

OAT MEAL BREAD.—Pour 2 cupfuls of boiling water over 2 cupfuls of rolled oats, cover and let stand until luke-warm. Dissolve 1 cake of yeast in ½ cupful of warm water and add to the oat meal and water, add ½ cupful of sugar (either brown or white), 1 tablespoonful of lard, 1 heaping teaspoonful of salt, and about 1 cupful of wheat flour or enough to make a sponge. Beat well, cover and set to rise for 1½ hours, or until light. Add enough flour to make a dough and knead well, let rise again until double in bulk, then make into loaves; when light bake about 45 minutes.

PARKER HOUSE CORN ROLLS.—Sift together 1¼ cupfuls white flour, ¾ cupful corn meal, 4 teaspoonfuls baking powder, ½ teaspoonful salt, 2 teaspoonfuls of sugar, chop in 2 tablespoonfuls of butter or lard, add 1 beaten egg to ½ cupful sweet milk, and turn into dry ingredients, making a soft dough that can be handled. Roll out one-half inch thick, cut in rounds, fold over like Parker House rolls and bake 15 minutes.

GRAHAM NUT BREAD.—Four cupfuls of graham flour, 2½ cupfuls wheat flour, 1 cupful brown sugar, 2 eggs, 1 teaspoonful salt, 2 teaspoonfuls soda, 3 cupfuls sour milk, ½ cupful nuts broken in small pieces, ½ cupful raisins; let rise for 20 minutes and bake slowly one hour. Makes two loaves.

Graham flour is now nearly as high in price as wheat, while rolled oats may be purchased in bulk for 5 and 6 cents per pound. I have put them through the food chopper and substituted them for a part of the graham in the above receipts, with good results.

Miss J. M. G., Buchanan, Va.—Since wheat flour has advanced in price we use more corn bread, which we have always liked. To make good sweet corn pone, put 1 pint of corn meal into a bowl and pour over it boiling water enough to scald it thoroughly, add 1 tablespoonful salt, 2 tablespoonfuls sugar, 4 pints more of meal and enough cold water to make a dough. Leave in a warm place to rise (over night if desired) and when light stir in ½ teaspoonful of soda and bake in a moderate oven. Good either hot or cold or sliced and fried

Two cupfuls rolled oats may be scalded with 1 quart boiling water and used in making yeast bread by any good receipt.

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DU PONT

The same quantity of oats soaked over night in 2 cupfuls sour milk, with 1 egg, 1 teaspoonful soda, 1 teaspoonful salt, 1 tablespoonful sugar, and flour to make batter added in the morning for griddle cakes, makes a favorite winter breakfast bread.

Such vegetables as potatoes, either kind, beans, pumpkin, winter squash, etc., may be used in either yeast bread or biscuits, thereby taking less flour. These breads are palatable but not so light nor white as all white flour makes. Beans should be put through a colander to remove skins; other vegetables mashed fine after cooking. Measure 2 cupfuls of the vegetable, 1 tablespoonful butter, ½ tablespoonful lard, sift 2 cupfuls flour with 3 teaspoonfuls baking powder and add 1 cupful sweet milk, 1 teaspoonful salt, 1 teaspoonful sugar, mix and mold into biscuits a half inch thick and bake in a quick oven. If desired, sour milk may be used with ½ teaspoonful soda, leaving out 1 teaspoonful of baking powder.

Stale bread may be crumbled into batter for griddle cakes or muffins, or dried in oven and rolled or put through food chopper is preferred to cracker crumbs for croquettes, etc., while in puddings and some other dishes these dry crumbs may take the place of an equal quantity of flour. No bread is wasted in our home.

Mrs. E. M. A., Ashville, N. Y.—With wheat flour hovering around $4 per sack, most of us find it advisable to get a substitute. As we all like corn meal at our house we use it almost exclusively for breakfast griddle cakes, mixing in only a handful of wheat flour. My friend makes excellent graham pancakes the year around, but our family does not care for graham flour, and we have trouble here in getting it free from worms in summer; indeed, not all stores carry it in stock because of this difficulty. However, the lady who often sells beside me on the street market, makes a specialty of graham bread made exactly like white bread except with graham flour and a trifle more sugar. She sells both for the same price and it looks nice, sells well and is undoubtedly excellent.

A favorite of ours is Johnny cake made as follows: One cupful sour milk, 2 cupfuls corn meal, 1 teaspoonful each of soda and salt, 1 tablespoonful sugar.

I don't know that oat flake is an economy, but dark cake and cookies are delicious made with it in place of a like quantity of flour.

My mother-in-law's rye bread is considered an essential in her family. She makes it like her white bread and it is nice of its kind, but we dislike the flavor of rye. For as good white bread as I ever saw, we take 1 cupful scalded milk, 1 quart water, 1 yeast cake, 1 tablespoonful sugar, and flour to make as thick as pancake batter. When light and frothy knead into a hard loaf, let quantity double, divide into five medium loaves and when light bake in moderate oven one hour, browning all parts evenly and richly. Our customers greatly prefer a well browned loaf.

Mrs. M. B., Blanchard, Pa.—Since wheat has advanced in price I have tried to use corn breads and graham muffins and bread much more frequently than formerly. Our family are all fond of them and it makes a very welcome change from the usual white bread, as well as helping to conserve the wheat supply. Rye flour I do not use except when I make Boston brown bread, for it is very high priced here and exceedingly difficult to obtain. Graham flour we use very frequently for muffins, and I usually add a loaf of graham bread to the usual baking of white bread.

Bread baking has always been one of my most successful efforts. This is my method: I use a bought yeast, which must be fresh. In the evening just before going to bed, I take 1 cupful of mashed potatoes, add 1 quart of water, break into the liquid 2 of the yeast cakes, add flour to make a soft sponge, cover, and let stand until morning. In the morning I add another quart of water, 2 tablespoonfuls each of salt, sugar and lard, add flour to stiffen and knead 15 minutes. I let rise for about 5 minutes, knead down lightly, let stand again for about 10 minutes and make it into loaves. This quantity will make six good sized loaves. In about two hours it is ready for the oven.

I never fail to have good bread with this method, even when I do not have the best flour, and it is so simple and so little work that I do not see why any one will eat baker's bread when they can have delicious home-made bread with so little trouble.

Mrs. J. C. W., Homer, N. Y.—I have used more bran and hominy grits since flour has advanced in price and we like it better than all white bread.

Bran Gems.—One-half cupful sugar, shortening size of an egg, 1 teaspoonful salt, 1 cupful milk, 1 cupful bran, 1 cupful graham flour, 1 large half cupful of white flour, 3 teaspoonfuls baking powder. Bake 20 minutes in hot oven.

Raised Corn Bread.—Scald 2 cupfuls of meal with boiling water; when cool add 1 cupful soft yeast, 2 cupfuls flour, ½ cupful sugar, 1 teaspoonful salt, ½ teaspoonful soda; let rise then steam 2 hours and bake until nicely browned.

Hominy Bread.—One and one-half cupfuls cold boiled hominy, 1 teaspoonful salt, 1 cupful meal, 1 large well beaten egg, 1 tablespoonful shortening, sweet milk to make a thick batter, 2 teaspoonfuls baking powder. Bake in greased bread pan.

Best Raised Graham Bread.—Two cupfuls soft yeast, two-thirds cupful of sugar, and use about equal parts of wheat and graham flour; stir with a large spoon, adding flour until you can lift it all up on the spoon. Let rise until it has nearly doubled in size and bake one hour. This makes one large loaf. The yeast is supposed to be salted sufficiently; if not, add salt to taste.

Pumpkin or squash added to ordinary Johnny cake improves it and makes a change. Use a little extra flour or meal.

Mrs. J. F. W., Shelbyville, Ill.—Before the sharp advance in the price of flour we had been changing from white to bran bread. At first we rather disliked the new bread, but now we prefer it. Several years ago we tried in vain to make a good whole wheat bread, also graham bread. Our bran bread is far better than either, and, if figures are reliable, contains much more cellulose. The receipt is very simple. In setting the sponge we use about equal parts of white flour and bran. The following morning this is mixed with enough white flour to make it the proper consistency. We use a great deal of this bran bread as zwelback (thoroughly toasted bread). The zwelback is sometimes ground in a food grinder, giving us a delicious breakfast food. As the price of flour soared we used a great deal more corn bread, mush and hominy. We have never used rye, except an occasional loaf purchased at the bakery. There was a time last winter when oat meal and even rice were cheaper than white flour. When such was the case we used freely of both.

Delicious bran muffins frequently appear on our breakfast table. The receipt was contributed by a neighbor to the Illinois Congress of Mothers' Cook Book, as follows: One cupful sour milk, 2 eggs beaten light, one-third cupful sugar, 1 heaping cupful bran, 1 heaping cupful white flour, 1 level teaspoonful soda (added to sour milk), ½ teaspoonful salt. Bake in hot oven.

Mrs. N. M. R., Ozark, Ill.—Yes, I have made some wonderful changes in my family baking since the advance in flour. The changes were hard for us to make, but it is proving a blessing to us after all. We live on a garden and fruit farm and do not raise wheat, so we must buy our supply. Flour got so unreasonably high that we began to sit up and take notice. We first ordered some graham flour from a mail order house, but it was not very much cheaper. Next Mr. R. went to a mill and paid $2.50 per bushel for some good wheat. This was nice and clean and we ordered a hand-mill and tried out grinding it ourselves. We first ground it very fine, then rather coarse, and I tried mixing a little white flour in and then a little meal. We ha' corn and we also ground it. However, we finally decided that we would rather have the straight graham twice a day, and then straight corn bread once a day. Morning and noon we use the graham, and at night use the corn bread, with milk and vegetables. This, of course, is high eating, but being forced to economize all we could, this was best we could do, and now, after several months, we all feel better, are able to do more work and children are healthier. I tell you, I can make a large pan of "sponge" cake out of graham and home-made sorghum molasses and the children eat it very freely and thrive thereon. I am very thankful for the change, and shall never return to old ways, no matter how cheap flour might get in future years. Just try it out.

Soy Beans as Human Food

While the soy bean has been used as human food in China and Japan for many generations, it is only in more recent years that it has been considered for that purpose in this country. Perhaps the present food crisis will emphasize its value as a food.

To get rid of the peculiar flavor of soy beans, they should be soaked for several hours, the water being changed two or three times. Cold water should be used for the first soaking and hot water for the second and third.

The lighter varieties are more desirable for cooking. The black or dark varieties like Wilson and Peking are less attractive in appearance. Medium Green, Ito San and Hollybrook are best. They may be prepared in any of the ways that the ordinary beans are used.

The food value of the soy bean is high. In 100 pounds there are 34 pounds of protein, 16.8 pounds of fat, 33.7 pounds of carbohydrates and 4.7 pounds of mineral salts. While only about 28 of the 34 pounds of protein is digested and used in body nutrition, experiments show that for each 100 pounds of food material soy beans contain the highest number of pounds of digestible protein, including meat, milk, eggs, wheat flour and corn meal.

Even at present prices, soy beans furnish the cheapest supply of digestible protein of any of the common protein foods, skim milk being the one possible exception. The fat content is higher than that of peas and other kinds of beans.

Some of us remember what a playroom the old farm "smoke house" used to make during a part of the year. Why shouldn't home cured meats, hams, bacon, dried beef, and sausage come back today? More smoke houses would mean more dollars that stay on the farms. Cornell College of Agriculture at Ithaca, N. Y., has a free publication, No. 119, which tells all about them. It should be in all farm homes.

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Asking them to put up their own canned peas, beans, corn, tomatoes, etc. The newly discovered harmless canning compound Ever-Keep makes this possible. 10c. pkge. preserves five quarts. A large pkge. sent free on receipt of 5c. postage for mailing. Price, 10c., 25c., 50c., $1. Agents wanted. Ever-Keep Canning Co. Lawton, Mich.—(Adv.)

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8370.—Ladies' shirtwaist. Cut in sizes 36 to 44 inches bust measure. Fronts are rolled to form revers.

8366.—Girls' dress. Cut in sizes 6 to 14 years. The dress is cut in one piece and has applied trimming bands.

8381.—Misses' dress. Cut in sizes 16, 18 and 20 years. The dress has a one-piece skirt.

8362.—Girls' dress. Cut in sizes 6 to 12 years. The dress closes at the front and has a one-piece skirt.

8378.—Ladies' apron. Cut in sizes small, medium and large. The apron closes at the back.

8397.—Ladies' blouse. Cut in sizes 36 to 44 inches bust measure. Any of the prettiest striped materials can be used to make this blouse.

8380.—Ladies' dress. Cut in sizes 36 to 44 inches bust measure. The dress has a three-gored skirt.

8384.—Children's dress. Cut in sizes 2 to 10 years. The dress is box plaited.

8365.—Ladies' skirt. Cut in sizes 24 to 36 inches waist measure. The skirt is cut in four pieces.

8392.—Girls' dress. Cut in sizes 4 to 10 years. The dress is cut in one piece.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA

Other People's Business

The Romantic Career of the Practical Miss Dale
By HARRIET LUMMIS SMITH

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CHAPTER XIX.

A DEFERRED INTERMENT.

Except for the clerk at the Clematis House the first person to welcome Justin Ware on his next return to his native town was Annabel Sinclair. She wore a little white veil, vastly becoming, but masking a tragedy, since she thereby acknowledged the deterioration of her complexion. The dramatic encounter took place one block from the hotel, and Annabel clasping her gloved hands uttered the single word, "You!"

The greeting, abrupt in type, is anything else on the lips of a woman who has studied the possibilities of that monosyllable. On Annabel's lips it expressed incredulous wonder, gentle reproach and strong feeling held in check by womanly modesty. No man can rise superior to this subtle flattery. Justin greeted her as if she were the woman of his dreams.

"It's really you—after almost a year." The reproach was uppermost in her voice now, but she mitigated its severity by allowing him to retain possession of the hand he had seized.

"It has been a long year—for me," replied Justin, and the rival artist thrilled with responsive admiration. For his manner said as plainly as words that throughout those dragging twelve months one thought had possessed him, the desire to see her again.

"Were you on your way home? May I walk with you?" He asked the favor with deferential tenderness. She granted it with an effective flutter of the lids. Each, realizing the other's proficiency in the game, was spurred to emulation.

And then abruptly the curtain dropped on the play, for at the first street corner an automobile barked a warning. Justin, who had gallantly taken his companion's arm, the better to assist her in the perils of the crossing, raised his eyes and at once lost interest in Annabel Sinclair and her kind.

The woman driving the car to all appearances had not recognized him, her absorption preventing her from differentiating the human species beyond the broad classification of those likely to be run over and those in no such danger. Her color was high, and her face despite a grim intentness indicated keen satisfaction. A handsome boy sat beside her, and Justin had a confused impression of a number of other children in charge of a buxom girl on the back seat. He stood motionless gazing after the flying car and oblivious to Annabel's resentful glances.

"Well, good afternoon if you've decided to spend the rest of the day on the street corner."

Justin roused himself. But he had lost heart in these amateur theatricals.

"Whose car is Persis Dale driving?"

"Her own. A year brings changes, you see, Mr. Ware. The car and the children all belong to her."

"What!" he shouted. His first not unnatural idea was that Persis had become the wife of a prosperous widower, and he was astonished at the pang for which this thought was responsible. Resentfully Annabel recognized the difference between the voice of real emotion and counterfeit tenderness.

Her lips curled as she allayed his consternation. "She came into a little money—an obliging aunt died, I believe. Pity it hadn't come early enough to do her some real good. She patched up her old house, and adopted five or six orphan-asylum kids, and I suppose the poor thing thinks she's having a good time." Even to the most prejudiced eye Annabel could not have looked beautiful at that moment. The venom that poisoned her spirit, disfigured her face like a scar. Hag-ridden by those unlovely twins, jealousy and hate, she looked for the instant prematurely old.

Justin did not notice. He was absorbed in gleaning from her all possible information as to the change in Persis' circumstances and quite indifferent to the emotions of his reluctant informant. With the relentlessness of the thoroughly selfish, he continued his cross-examination till Annabel's mind seemed to herself a squeezed orange. She felt something like terror mingling with a sense of physical exhaustion. It always frightened her to find herself unable to keep a man's attention focused on herself when she had him to herself.

"When shall I see you again?" she asked as she approached her home. Had the interview continued with the dramatic intensity of its beginning, she could safely have left him to ask that question. Under the circumstances she did not dare.

"I'm not quite sure. I have some business that has hung fire an unconscionable time, and ungallant as it seems, we twentieth century fellows have to put business before pleasure." He smiled propitiatingly and therein lay the sting, that he did not even take the trouble to conceal that he was trying to appease her. Their parting sank to the level of the commonplace for he shook hands hastily, and her look of appeal flattened itself ineffectively against his preoccupation.

A little skillful quizzing of the hotel clerk confirmed in every detail Annabel's remarkable story, and in his own room Justin sat down to think the matter through to a conclusion. The renewal of his acquaintance with Persis Dale nearly a year earlier had enlightened him as to the tenacity of certain impressions he had thought obliterated long before. The girl he had loved in his callow youth and had forgotten, still retained something of her old fascination for him. A year earlier this discovery was responsible for an amused wonder at himself, coupled with a realization of the need of caution. Now common sense took sides with his lingering fondness. Persis Dale, with a comfortable little fortune added to her unique personality, had become distinctly desirable. She was a woman with an infinite capacity for surprises, which meant that she would not bore the man she married, unduly. With a little metropolitan polish added to her native cleverness she should be able to give a good account of herself socially. The children were a drawback, of course, but there must be some way of getting rid of an adopted family of which one tired. And it was quite impossible that Persis' fondness for the little ones she had picked up the other day, so to speak, would prove a serious rival to an affection which had been a vital factor in her life for more than twenty years.

By supper time he had made up his mind. With a little sigh for the freedom he was relinquishing, he resolved on matrimony. He had always intended to marry somebody and domesticity with Persis promised at least commonplace comfort, something Justin was the last man on earth to despise. With the children disposed of, Joel sent adrift and Persis' money wisely handled, there was no reason why they should not get on better than the majority of married people. Justin ate an unusually hearty supper as if to fortify himself for his wooing.

He had made up his mind to ignore the change in Persis' circumstances that his call might seem a spontaneous tribute to her personal attractions. But the change in the house and its furnishings was so pronounced that he judged it bad policy to pass it over without comment. "I thought for a minute I'd come to the wrong house, Persis, and I felt positively alarmed about myself. I knew if I couldn't find the Dale place blindfolded, I needed the services of a nerve specialist." He laughed a little with an air of catching himself up before he had said too much, something he had found effective with many women.

She smiled upon him gravely. "It was the improvements that mixed you up, I suppose. There was a spot on the ceiling of mother's room where the rain leaked through the winter she died. After the papering was finished I missed that spot as if it had been human. Time and again when I went into that room I'd jump as if I'd go into somebody else's house by mistake." Her voice lost a subtle pensive quality as she added: "But the new furniture ain't the best of the changes, Justin. I wish I could show you the children, but they're all in bed and asleep."

"I'm not sure I'm sorry." Justin's voice was low and caressing. "It's always been hard for us two to have any time alone. I used to wonder when I came here who would be sitting by and listening to every word we said, your father or your mother or Joel or some other young fellow who'd discovered the most charming girl in Clematis. If fate has granted us an evening to ourselves at last, let's be thankful."

He thought it a very fair beginning. The reference to their early love affair could not fail to soften her. The implication that the interference of interested third parties was responsible for keeping them apart was cleverly done. It was a distinct surprise at the end of an hour to find himself no further along than at the start. Justin had no intention of offering his hand and heart to any woman without a reasonable assurance of a rapturous acceptance, and singularly enough, he was far from certainty. He had been making love in a restrained and subtle fashion for the better part of an hour and was ready for an avowal of his devotion as soon as Persis showed any intention of meeting him half-way. But up to this point, she had skillfully disguised any such intention, and while showing no displeasure at the sentimental tendency disclosed in his remark, had so persistently injected a tincture of matter-of-factness into the conversation that he seemed as far as ever from coming to the point. With it all, her air was friendly. He suspected her of playing with him, taking her revenge by keeping him in doubt overnight.

Resistance seldom detracts from a woman's value in a man's eyes. When Justin rose to go he was almost ready to believe himself in love. He was a little angry, slightly amused and more in doubt as to her state of mind than he often felt regarding his opponents in the eternal duel. When Persis gave him her hand for good-night he held it in both his own for a moment and raised it to his lips. The curious rekindling of a burned-out tenderness, due to her lack of responsiveness, gave the act an effect of sincerity which impressed him, even while he thrilled with honest passion, as an excellent move.

He looked into her eyes and found them gravely contemplative. "Justin," she said, "there's something I want to speak to you about if you're not in a hurry."

He tingled with triumph. Women were all alike. She could play the coquette for an hour, but she could not let him leave her till she had heard the words he had been trying all the evening to speak. He put down his hat. "You know, of course," he said with an air of repressed feeling, "that I am at your service now and always." And as her eyes fell he laid his hand on hers.

It was not easy to restore the balance, but Persis did it. "The property my aunt left me," she began in her most matter-of-fact voice, "brings me a pretty fair income, but nothing's good enough as long as it might be better. Only yesterday I got an offer of ten thousand dollars for some water-works stock in a place out West where Aunt Persis Ann lived for a good many years."

Justin put his hands in his pockets, the character of her opening rendering sentimental advances ludicrously inopportune.

"Have you any idea what income you get from that stock?"

"Last year it was a thousand and fifty dollars."

"Why, that's over ten per cent. on what the fellow offers you," Justin ex-

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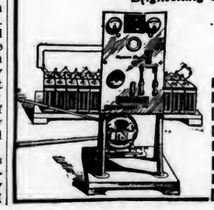

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claimed, and Persis nodded.

"Yes, about ten per cent. And in the Apple of Eden Investment Company I'd be guaranteed twenty-five per cent. by the tenth year, with a good chance to double my money even before that. I didn't stop you to ask your advice, Justin, for I can see you'd feel a little delicate about urging me to invest in your company. But what I've heard from Mis' Hornblower makes it plain enough that the best thing for me to do is to turn my property into cash as fast as I can and put every penny into apples."

Justin crossed his feet, reflecting impatiently that it was high time for Persis Dale to have a husband. His elation over all that was implied by her consulting him on so personal a matter, was almost lost in his feeling of annoyance. This made it plain that he must lose no time, but marry her offhand. What with her penchant for orphans and for foolish investments, she would make ducks and drakes of her fortune unless a man peremptorily took the helm.

"It would be a pity to be precipitate, Persis. An investment that pays ten per cent. isn't to be sneezed at nowadays. And this fellow's offer just now looks as if the stock wasn't in any danger of depreciating."

He glanced at her and was annoyed to find her face stubborn. Had she been the type of woman to accept masculine counsel as akin to divine guidance, his task would have been easier. Her evident lack of yielding forced him to take a superior tone.

"My dear girl, you will admit that I am a little better versed in business matters than you are. And my advice is to hold on to your stock unless you should have a better reason for selling than appears at present."

"Ten per cent. looks pretty well alongside the savings bank, I'll admit. But why shouldn't I get twenty-five? I've got these children to educate. I can use considerable more than if I just had myself to think of."

He gulped down his vexation. "Raising apples is a science, Persis. The weakness of the American investor is to imagine that he can do whatever any other fellow has done. Because some horticultural shark doubles his money on his orchard in a banner year, you fancy you can do the same every year."

"Gracious, Justin! I'm not going into apple raising. I've got my hands full enough without that. I'm going to leave the company to run my orchard for me. All they ask is twenty-five per cent. of the net profits, but you know that without my telling you."

"And suppose there comes a year like 1896, when apples didn't bring enough to pay for the barrels they were packed in? You can't count on top-notch prices every season."

"No, but I can count on the company's guarantee."

An oath, a tribute to her obstinacy, winged through his brain. In his exasperation he forgot caution.

"That guarantee—"

"Well?"

"There's nothing to hold us after you've become the owner of the property. If we find that running your orchard isn't profitable, as we might easily do after one or two bad seasons, we could slip from under, and you could use the guarantee as you call it, for curl papers. That's all it would be good for."

He was glad to see that he had shaken her foolish stubbornness at last. She caught her breath like one jerked back from an unrealized danger by a friendly hand.

"I—I guess it's lucky I consulted you, Justin. It's foolish for a woman to think that she's up to all the tricks in business nowadays." The slight trembling of her hand tempted him to kiss it, though he compromised by merely taking it again.

"If I've helped you a little, Persis, dear girl, I'm very happy. I only wish you were willing to make use of me always." His hope that this was the psychological moment was dashed when, ignoring the attempted caress, she grasped his hand and shook it vigorously.

"Good night, Justin. Thank you for setting me right in that matter. I believe that's the baby starting to cry. I'll have to hurry up before she rouses the house."

But she got no farther than the foot of the stairs on this errand, and Justin, letting himself out, gave voice to the oath he had thought more than once that evening. Persis stood listening as he made his way down the walk, but upstairs all was still. She returned to the living room rather slowly. Through all the various changes in the household, indicative of increased prosperity, the photograph in the blue plush frame had triumphantly retained its post of honor on the mantel, a landmark of constancy. Now she took it up with hands that trembled.

"It's not that I've got anything against you." She addressed it as if there were an intelligence back of the vacuous pleasantness of the young face. "It's only that there's not any *you* and hasn't been for I don't know how long. It's so much deader than death, all ashes to ashes and dust to dust and the spirit turned into something different." And then Justin's hopes would have soared high had he seen her, for she kissed the lips that smiled at her, a strange kiss in which pity blended with forgiveness.

Holding fast to the blue plush frame, Persis passed through the house to the woodshed, found a trowel among the garden tools, and then made her way into the night. The sky was overcast, hiding the stars, but the flitting fireflies outlined strange constellations against the velvety darkness. Persis groped her way through the dewy grass toward the syringa bush, guided as much by the odor of blossoms as by sight, and falling on her knees used her trowel industriously for many minutes. And when the grave was deep enough, she laid the plush frame into its recesses, hiding the smile she once had loved, with heaped-up earth. Since so many of her girlish hopes were covered by that same earth, it is not strange that her tears fell upon the little mound.

"I'm going to miss that picture same as if it was alive. It was always smiling so cheerful that it cheered me just to look at it. But when a thing's dead, it ought to be buried, and as it is, I guess this funeral is pretty near twenty years behind time."

CHAPTER XX.

CHECKMATE.

In spite of the lack of success which had attended his tentative wooing, Justin Ware slept soundly, woke cheerful and made a comfortable breakfast. Over his coffee and pancakes he outlined not the plans for a systematic siege of Persis' affections, but the maneuver through which he hoped to carry the Hornblower citadel by storm. He had used no meaningless figure of speech when he assured Annabel of his practice of making pleasure secondary to business. Robert Hornblower's resistance had piqued and baffled him, the more as he knew that Mrs. Hornblower was his uncompromising ally. Indeed his presence in Clematis at this juncture was due to a letter from this invaluable colleague, casually mentioning that her husband had received an offer for the farm which she wished he might be induced to accept. "While I leave all such matters for Robert to decide, as I consider to be a wife's *plain* duty," wrote Mrs. Hornblower, with a lavish use of italics, "I have not hesitated to tell him that I think his closing with the offer is for the *best* interests of us all." And Justin had interpreted the communication to mean that his confederate believed the day of victory at hand. He finished his breakfast at an early hour, judged by metropolitan standards, selected the most promising animal from the sorry exhibition of horse-flesh in the local livery and drove out to the Hornblower farm, smoking on the way a better cigar than could be bought in Clematis, and feeling unusually well satisfied with the world and himself. His failure to bring the Hornblower affair to a successful conclusion had annoyed him not so much because of the importance of the transaction, as because his professional pride was hurt at finding himself unequal to the task of convincing a henpecked old man. From the tone of Mrs. Hornblower's letter he was confident this failure was about to be retrieved, and that Persis would prove amenable to his flattering advances, could be taken for granted. On one point he must be firm. From the beginning he must assume the necessity of her renouncing her recently acquired family. He could say and with truth that children made him nervous. But to postpone the settlement of the difficulty until after the wedding would be a fatal blunder. When women felt sure of a man, they sometimes developed a disagreeable tenacity in holding to their own way. Altogether on this early morning drive, Justin's difficulties dwindled almost to imperceptible points while his blessings loomed large, a state of mind we are assured, most favorable to success.

Mr. Hornblower came from the barn as he drove up and greeted him with successfully disguised cordiality. But a glance convinced Justin that the long siege was nearly at an end. In the pouches under the man's weary eyes, in a certain sagging of his lower lip, in an indefinable air of being beaten, Justin read the signs of approaching capitulation.

"Mis' Hornblower is in the house. I guess you'd better see her this morning. I'm pretty busy for visiting."

"I won't keep you long, Mr. Hornblower. I just want to lay a proposition before you that's sure to interest as good a business man as you are." Justin waited while the farmer tied the horse, and then, slipping his hand through the old man's arm, guided him dexterously around the house. Robert Hornblower yielded like one hypnotized, an expression of rigid horror on his face as if while seeing some peril immediately ahead, he found himself unable to avoid it.

Mrs. Hornblower sat in a rocking-chair by the window, tapping the floor with her heel as the chair swayed, and nervously smoothing imaginary wrinkles from an immaculate apron. Justin took a step toward her, then stopped with an awkward jerk. Early as he was, another caller was ahead of him. In the opposite corner, grim and unsmiling as fate, sat Persis Dale.

Justin realized his own embarrassment with angry wonder. He had the emotions of a boy caught in a foray on the preserve closet. "Good morning," he said, and was shocked by the startled suspicion of his own voice. He carried out his original intention of shaking hands with Mrs. Hornblower, though without his customary grace of manner, and then turned to go through the same ceremony with Persis, but her tightly folded arms gave little encouragement to this design. He compromised by taking a chair near her and saying pleasantly, "You're an early arrival."

"I calculated you'd be here as soon as you got done your breakfast," Persis replied, and left him to interpret the ambiguous remark as he pleased.

Justin's career had not been of a sort to cultivate undue sensitiveness. A moment sufficed to make him master of himself. "I came out to discuss a little business proposition with Mr. Hornblower," he explained carelessly. "But I don't want to interfere with the enjoyment of you ladies. Some other time—"

"Don't mind me," interposed Persis. "Mis' Hornblower and I haven't anything special to talk about. We're interested in your business proposition, both of us."

"I don't know as I care to hear it," interrupted Mr. Hornblower, speaking with a certain wildness, an indication that he had almost reached the limit of resistance. His voice was shrill and unnatural. "All I want is to be left in peace on the farm where my father lived and died before me."

"Robert," said the submissive Mrs. Hornblower witheringly, "I'd be asl amed to talk as if I'd been born an oyster instead of a man."

"Of course, Mr. Hornblower," Ware began soothingly, "I should be very unwilling to overpersuade you. If my proposition does not commend itself to your own good judgment, you are perfectly justified in turning it down. Or if you are not in the mood for talking business today, some other time—"

"There's no time like the present," said Persis Dale. "And if you don't like what he's got to offer, you can say no, Mr. Hornblower, and stick to it. Your no is as good as his *yes*, I'm sure, when it's your business that's being talked of."

She had suddenly become the dominant figure in the room. Mrs. Hornblower glanced at her uncertainly. The promoter smiled propitiatingly. The old man shuffled toward her with an evident hope that through proximity he might profit by her sturdy strength.

"I don't mind listening, Persis," he said tremulously. "I'm a reasonable man. What I object to is being nagged and badgered as if I didn't have a right to say my soul was my own."

"I'm sure, Mr. Hornblower," Ware interrupted, "that Miss Dale will tell you that I have no wish to hurry you into any decision you will regret. In our business, satisfied patrons are our best asset. I only want to call attention to a little matter that may have escaped your attention and then leave you to think it over." Though his remarks were addressed to the farmer, his appealing gaze was fixed on Persis. He was disagreeably uncertain as to her attitude. Possibly she had come with the purpose of doing him a favor. And possibly—But he dismissed the alternative before it had taken shape in his thoughts. On the evening before he had made plain his willingness to take up their acquaintance just where it had left off, twenty years before. And if he knew anything of women, nothing would induce her to imperil the renewal of that relation.

In spite of this conviction his manner showed embarrassment as he began his explanation. The smooth phrases he had used so often that he could have spoken them in his sleep came readily to his lips, but even to himself they sounded hollow and unconvincing. He was embarrassed, too, by Persis' tendency to ask questions, to inform herself as to every detail of the plan he was unfolding. So persistent was she in her cross-examination that Mrs. Hornblower showed signs of irritation.

"Goodness, Persis, it ain't necessary for Mr. Ware to go into all those points. It ain't as if this was the first time we had ever talked over the matter."

"It's just as well to have things plain," Persis replied imperturbably. Justin noticed that she looked less youthful and comely than on the occasions when he had previously seen her. She had the gray and care-worn look excusable in a woman approaching the fortieth milestone who has spent a wakeful night. He was conscious of a sense of annoyance in noting the distinctness of the triangle formed by her firm mouth and the lines that slanted obliquely back from its corners. Her persistance, too, troubled him. He was well aware that there is no more serious flaw in a wife than the habit of asking questions.

In spite of interruptions he finally finished his story and folded the papers from which he had used certain figures to give his statements an authoritative air. Mr. Hornblower squirmed uneasily, looking at Persis as if appealing for help.

"As I said before, Mr. Hornblower," Justin assured him with an air of gentle consideration, "I am not at all desirous of hurrying you in the matter. If you prefer to think over what I have said, and then when you reach a decision—"

"I don't see," exclaimed Mrs. Hornblower from her seat near the window, "why it shouldn't be settled today. We've got a good offer for the farm now, but if Robert keeps Mr. Jeffreys hanging by the gills, the chances are that he'll satisfy himself somewhere else. And it isn't as though we hadn't talked this over from A to Izzard."

"You've got to make up your mind sometimes," Persis Dale corroborated her. "I always feel as if 'twas a relief to get a thing settled."

Mrs. Hornblower who up to this moment had seemed to regard Persis' presence as an affront, smiled upon her almost affectionately. Robert Hornblower had an air of feeling himself deserted. Justin was not sure.

"But before you get the thing all settled and signed," Persis continued smoothly, "there's one little thing I'd like to have Mr. Ware explain. If this investment is such a good thing for you, why isn't it just as good for me?"

A tense silence followed which Mrs. Hornblower broke. "For you?" She pushed her spectacles up on her forehead as if she found the lenses an obstruction to vision rather than an aid. "Have you—have you been thinking of putting any money into apples?"

"I asked him last night about investing ten thousand dollars in this company. He talked against it—strong. He gave me to understand that if I was getting ten per cent. on my money I was lucky."

Justin sat with his eyes on the floor, making no effort to explain. It was checkmate, and he knew it. The love of his youth had played with him, tricked him, used him for her purposes even while he believed her on the point of capitulation. It was small consolation at that moment to realize that greater men had lost greater stakes through that little illusion of being irresistible to the sex. He turned sick with humiliation, hot with hate. He had prided himself on his sophistication, and this country woman had laid a trap for him into which he had obligingly blundered. To attempt an explanation would be folly. Checkmate!

"Ten per cent.!" Mrs. Hornblower's voice rose shrill and frightened. "Why

(Continued on page 296)

The Practical Farmer Live Stock *and* Dairy Section

The Big Little Island of Jersey

The following account of a recent trip to the Island of Jersey was written for The Practical Farmer at the Editor's request by Mr. R. E. Hutchison of Meridale Farms, Delaware Co., N. Y. We believe our readers will find the story of this wonderful island as interesting as we did when we heard it from Mr. Hutchison's lips.

The traveler to the Island of Jersey comes home with many impressions vividly stamped upon his mind. The first glimpse of the island itself, especially to one whose chief interests center about the Jersey cow, is a thing not soon to be forgotten.

Our small Channel mail boat, after a pleasant night's run from Southampton, interrupted only by the inquisitiveness of a German submarine commander whose order to stop was eluded with true British seamanship, sighted the Island of Jersey as the rising mists of an early December morning revealed here and there the rugged outlines of the coast. As the indistinct contour of the coast line slowly resolved itself into a view of Grosnez Point, the string of Martello towers stretching along St. Ouen's Bay, and the jagged rocks surrounding Corbiere Light, I experienced a pleasant thrill of satisfaction.

The Island affords a remarkable diversity of scenery for so small an area. Lofty granite cliffs line the northern coast, the culminating point, Mt. Mago, reaching a height of 475 feet above sea level. The surface gradually slopes southward by undulating plains, intersected by charming little valleys, watered by tiny streams which wind down to the low, flat south coast. To one accustomed to the great distances of America, it is an interesting miniature of scenic wonders.

Strangely enough, for one who was led to the Island first of all by an interest in her cattle, my chief impression of Jersey is of her all-around agricultural superiority. Probably most American farmers share the belief with which I left New York Harbor, that our farms and our methods of farming are the best in the world. I came home with a far different conviction. We have not yet begun to farm in America.

What would you think of paying $2500 an acre for farming land? Would an annual rental of $125 an acre appeal to you as a possible business risk in America? Yet these figures were quoted to me as by no means uncommon in Jersey. Even in these war times, with the handicaps of shortage of labor, scarcity of winter feed, and greatly increased living costs, it is obvious that "farming pays."

A few figures may be illuminating.

The area of Jersey is about 45 square miles—28,717 acres, to be exact, though land there is not measured in acres but in vergees, an acre equaling two and a quarter vergees. The extreme length of the Island is about 12 miles, the extreme breadth about 7. The average or mean length is perhaps 9½ miles; the average breadth about 4½. Yet in normal peace times this small garden spot of Mother Earth supports a population of more than 50,000 souls.

The farms are small, compared to those of America. This is due partly to the natural result of the old Norman law of succession, by which estates are divided and then sub-divided with each succeeding generation. The population is very largely of Norman descent, and the language is a Norman-French patois, though nearly all inhabitants also speak English. According to the 1915 parish returns, there were in that year 653 farms on the Island under five acres in size, and only three as large as 50 acres. To the American, the care devoted to the cultivation of every available square foot of soil is a revelation which comes almost with a shock. Corners, hillsides, and out-of-the-way spots which would never receive a second look in America are painstakingly tilled, with results markedly creditable to the industry of the Island farmer.

Climatic conditions are so favorable that two crops a year are always grown, and frequently three. During my visit, in January, plowing was well under way in preparation for the early potato crop, to be planted the first of February and dug in June. The same ground would then be turned over again and put into roots, tomatoes, or other crop. The potato industry is the backbone of the Island farming system. As high as 62,690 tons of potatoes have been shipped in one year. The 1912 crop of 50,783 tons of potatoes represented a value of $2,410,494.00. The 1916 crop, I was told, was valued at something over $3,000,000. And that was only one crop from an area of 45 square miles!

Group of Purebred Jerseys at Meridale Farms, New York

In addition to potatoes, very considerable crops are also grown of wheat (they call it "corn"), turnips, mangolds, cabbage, lucerne, carrots, "Jersey cabbages," etc., while perhaps 400 or 500 acres are set to small fruits and other crops. The farming is most carefully done. Never in my life have I seen furrows so straight as those Mr. Buesnel was turning one morning as I chanced to drive past his farm in St. Saviour's Parish. Nor is anything wasted. In pruning trees or trimming brush, the twigs which in America would be cast thoughtlessly aside are there carefully preserved, bound in small bundles for fire-wood, and sold at three-pence the bundle!

There is a dearth of timber, and lumber for building purposes is consequently expensive. All farm buildings are of stone construction. The stables for the most part (there are several notable exceptions) would not pass the inspection of our New York City Board of Health. They are insufficiently lighted, poorly drained and ventilated, and too close to the farm house to satisfy the American sense of taste or comfort. Inasmuch as the cattle can graze out of doors practically every day in the year, this is not so serious a matter as it might seem at first thought. Usually the farm buildings are erected in a quadrangle, all of them connected, with an open barnyard in the enclosure, to which entrance from the roadway is had by a large gate for wagons and a narrow doorway for pedestrians.

The fertility of the soil is amazing, and the Jersey farmer tills it most industriously. He plows deeper than we are accustomed to do in America, and cultivates more thoroughly. Every farmer keeps at least a few cows, and the manure thus secured, together with the supply of vraic (sea weed) washed up by the tide and to be had for the hauling, provide the fertilizers required. The vraic is used in different ways, either spread fresh upon the ground and plowed in at once, or first allowed to decompose upon the surface and then plowed under. The effect is noticeable for about one year.

The true Jerseyman speaks of the Island climate with obvious pride. I am convinced that in doing so he refers to the spring and summer weather, and is anxious to direct attention away from the winter, for during my sojourn there in January we had a glimpse of the sun but one day, and every other can only be described as uncomfortable. However, the diurnal range of temperature is only 8 degrees, the annual mean temperature is 51 degrees, the annual rainfall about 31 inches, and the number of days upon which rain falls averages about 150 in the year—which figures bear out all the Jerseyman claims for his climate.

In normal times there are over 12,000 head of cattle on the Island, but last winter, owing to war conditions and the exceptional prices offered for beef, perhaps there were not more than half that number. Most of the herds are too small in size to be classified as "herds." In fact, in a great many instances not more than two or three cows are found on one farm. It naturally follows that few farmers keep their own bulls, but find it more economical to breed their cows to the bulls which stand for public service on the Island. This practice naturally results in making popular very quickly the particular strains of blood represented by these service bulls. It is not so satisfying to the breeder, of course, as our American custom of keeping larger herds and heading each herd with its own bull.

There is no need to attempt descriptions of the Island cattle. Representatives of the popular strains may be seen in many herds distributed throughout every section of America, where the Island-bred Jersey has been transported and has thriven. In a general way, there are doubtless as good cattle on the Island today as the average at any previous time, though veteran breeders will tell you that they can never replace some of the grand cows of earlier days. (Some of our older American breeders will say exactly the same thing of our American stock.) It is a problem, however, how so small a territory can continuously supply the increasing demand from all over the world without seriously diminishing its breeding resources. In the month during which I visited the Island, shipments left St. Helier Harbor for England, South Africa and Australia, as well as three separate exportations to the United States.

Many good breeders will differ from my point of view, but, personally, I wish the Island breeder would give more attention to size and capacity, and to the length of teats, even at the cost of that ultra-refinement of type which many of us in America, as well as on the Island, have come to prize too highly for the practical welfare of the breed. It is to be borne in mind that on the Island the women folk do much of the milking, and the short teat is not objectionable in their hands, which are smaller by the grace of the Almighty than those with which He adorned the sterner sex.

On the Island cattle are not turned loose to graze in pasture, but each cow is tethered on a rope or chain, permitting her to crop the grass in a circle perhaps 25 feet in diameter. This practice has several advantages—it affords the cow ample exercise, yet does not permit her to wander aimlessly and at the expense of her milk production; it keeps the pasture cropped evenly, and results in a better and smoother growth of grass; and it secures an even distribution of manure, which is a very practical benefit. It requires some extra labor, but the Jerseyman is accustomed to a larger force of help per acre than we could find practicable under American customs of farming. Grain foods on the Island are prohibitive in cost. I paid at the rate of $90 per ton for bran in preparing to ship our cattle. The Jersey farmer naturally feeds little or no grain, making up his ration from mangolds,

turnips, etc. He has the great advantage, however, of green pasture the year through.

All cattle on the Island are essentially pure-bred, since none have been imported (except for immediate slaughter) for several hundred years. In a few herds registration has not been maintained, which is regretful and will some day be a recognized economic loss. Their system of registration compels my respectful admiration. It would not be feasible in America, where breeders are located at some distance from club headquarters, and business must perforce be transacted by mail. On the Island, every farmer is in town at least once a week, and can attend in person to all business with the Agricultural and Horticultural Society, which has charge of registrations, etc. Within a week from the birth of the calf, its arrival must be reported to the secretary of the herd book. Proper notation is made, and a name is reserved. The secretary announces, at intervals of not more than two months, dates upon which stock may be presented for qualification. It was my good fortune to accompany the examining committee on one of its tours of inspection. A meeting place in each parish was appointed, to which were brought all cattle in the vicinity requiring registration. The females were chiefly heifers in milk. The animals approved were qualified as two classes: Highly Commended, entitled to the initials H. C. after their names in the herd book; and Commended, accorded the initial C. One of the heifers presented on the day in mind was rejected, and rightly so. Bulls are presented with their dams, if possible—if unaccompanied by the dam the bull is entitled only to the qualification "C."

An individual book is issued for each animal as registered, giving the tabulated pedigree, individual markings and statistics, and in the case of a cow, a sufficient number of blank forms in which to enter each of her services (over the signature of the owner of the service bull), the record of her progeny, and her butter test winnings. It is by long odds the most accurate and comprehensive system of registration with which I am familiar, and is due, they tell me, to the initiative and energy of Mr. J. A. Perree, for many years secretary of the Island Herd Book.

I like also the system of yearly milk records they follow. Butter fat tests are made by a representative of the Society approximately every fourteen days. It is contemplated that testing shall be carried on from year to year without cessation. All cows in the herd must be included in the test. The weight and composition of the milk must be recorded at each visit of the supervisor. To qualify for a Certificate of Merit, the cow must exceed the required production for her age (which conforms in amount to our own Register of Merit), and also to drop a calf within thirteen months from the beginning of the test. This last feature, which is omitted from our American Register of Merit, is, to my mind, the weak point in our system of testing. Any fair system is bound to give proper importance to reproduction as well as to production, else it lacks the practical value which determines the efficacy of test work.

The Island is covered with a maze of roads and lanes. The traveling is good. The roads are exceedingly picturesque, and so complex in their windings that the stranger is certain to experience difficulty in finding his way. To drive here and there about the Island, under the care of a driver who is familiar with its beauty spots, will afford many days of delight to the visitor who appreciates the quaint and the picturesque. The circuit of the Island can easily be made in a day, though one can not by any means exhaust the scenic resources of the place in many days. On a clear day the coast line of France is clearly discernible from Mt. Orgueil and the eastern portion of the Island, while as one drives along the high bluffs on the northern shore he has an impressive view of the Island of Guernsey in the distance.

I can not conceive that any man who has visited the Island of Jersey will not wish to go again, and soon. The cordial and friendly reception at the hands of the Jersey farmer is in itself an invitation to repeat the visit. His courteous interest in American farming customs, his recollection of this cow or that bull which has come to our shores, his polite concern in your personal comfort, furnish a common ground of acquaintanceship. War conditions are disagreeable, of course, but my impressions of Jersey are so pleasant, and the cattle which came from the Island to Meridale Farms as a result of my journey are doing so much better than I had dared hope, that I am anticipating the pleasure of another visit there as soon as circumstances will permit. Jersey provides a combination of real business with real pleasure which it is difficult to resist.

New Jersey Dairy Record Associations Active

The supervisors of the eight dairy record associations in New Jersey send monthly reports of their work to the extension division of the New Jersey State Agricultural College. A summary of the figures for May shows some interesting facts. The total membership was 136 and the number of individual cow records kept was 3,109. There were 33 dairymen still feeding silage during May. Twenty cows gave 1500 pounds of milk and 180 produced 40 pounds of fat. The best individual record was made by a Holstein cow belonging to G. M. Echert, of Bergen Co. Her production for the month was 2304 pounds of milk.

Keep Dairy Utensils Clean

In general any conditions which make milk of better quality for manufacture make it of better quality also for consumption as milk. It is highly important during the hot summer months that all dairy utensils be kept thoroughly clean. They should be heavily tinned. The milking pails should have few seams, and such seams as are present should be made smooth with solder. If any rust spots appear, such as is often the case with light-weight tinware, an entrance is given in the soft iron for unfavorable bacteria and for particles of decaying matter. To wash milk utensils properly they should be rinsed as soon as emptied, as the cleaning can be accomplished better than when left for several hours before washing. Lukewarm water unites with the milk readily and is preferable to cold or hot water for rinsing. Hot water will often cook the milk upon the vessels.

The extension specialist in dairying of the New Jersey State Agricultural College gives five precautions that should be followed: 1. Rinse all receptacles thoroughly in luke-warm water. 2. Wash them with a good soap or alkali in water as hot as the hand will bear. 3. Rinse in hot water. 4. Sterilize with steam. 5. Expose to the bright sunlight for two or three hours.

The farmer who uses the swill pail for feeding calves or who hangs the pail on a post between feedings without washing it will soon be looking for a cure for calf scours. The dirty calf pail is one of the chief causes of scours, according to L. W. Wing, Jr., of the Missouri College of Agriculture. With the fly season and warm weather at hand extra precautions must be taken in caring for the calf pails. They should be washed thoroughly after each feed and sterilized either with steam, or hot water. After the pails have been sterilized they should be inverted in a clean, protected place until time to use them again.

Three Dairy Essentials

RUDOLPH BOEWE.

The successful dairyman must be a man who likes to take care of cows, is a good milker and deals firmly yet gently with them. We are at present milking 22 head. I have three men that help me milk morning and night. I feed the cows so they can eat while we milk. I milk the hard ones and those that come in fresh, until the swelling leaves their udders. Each man has his regular cows to milk. I do not like to change milkers around. The milk from each cow is weighed as milked, a separate record is kept and the tester is used once a month, so we can know just what each is doing and weed out the poor ones. We also use the scales to weigh the feed quite often; we do not want to do much guesswork. We allow no fighting with the cows. If they kick there is usually some cause for it, which can probably be removed. If they persist in kicking we take a rope and tie it around their body in front of the hips and udder and they simply cannot kick. A few applications of the rope usually cures them.

The cows are kept in stanchions while in the stables. We keep them well bedded and in the morning before we milk all solid manure is removed and new bedding put in, so the cows are quite clean.

We are having our first experience with peanut hay. The cows like it fine. We ran it through the thresher and took off most of the nuts. It surely makes fine hay for dairy cows and the young stock. We had nearly four tons of cowpea hay to the acre in one field. Plenty of leguminous crops can be grown, yet our neighbors all about us grow cotton and a little corn, no hay of any kind, and allow part of their stock to suffer for feed part of the time.

The three essential things to make the dairy business interesting and profitable, I think, are weighing each cow's milk separately, testing the milk and feeding a balanced ration. The men all take more interest when each cow's milk is weighed and try to keep her up in milk flow or see if they can't get her to increase.

Early Lambs Bring Profits

Pennsylvania farmers living in the neighborhood of the larger cities of the state which provide good markets should find the production of early lambs profitable.

Special equipment is required when early lambs are produced. They are a special product. Reaching the market as they do out of season, they command maximum prices.

At from twelve to sixteen weeks of age early lambs should weigh about sixty pounds. It is absolutely necessary, states Prof. B. O. Severson, of the Pennsylvania State College, that early lambs carry a high condition of flesh. Condition is more important than weight.

Early lambs may be disposed of during February, March and April, either through commission men or by direct sale to restaurants or hotels.

The breeding season for early lambs should begin during July, August and September. Lambs will then be dropped in December, January and February.

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This country, during normal times, provides three-fourths of the world's trade in pork and pork products. The hog has always been the leading source of raw material for the packing houses, and many ways have been found for putting him and his products on the market. Next to poultry raising there is no other way in which a meat supply can be so quickly produced as by growing hogs. Prices today make the industry profitable in spite of the high prices of grain, because so many otherwise waste products and quickly grown forage crops can be used to supplement expensive feeds. This year more than ever before each pig should be encouraged to make a hog out of himself, and each little thing that is done to help him in this patriotic idea will be well repaid at butchering time.

CARE OF BROOD SOWS.

While brood sows require less attention during the summer months than at any other time of the year, they should not be neglected. Good pasture and considerable range for exercise not only lowers the cost of maintenance, but also serves to keep sows in a healthy condition. The amount of concentrates fed can be greatly reduced if the sows have access to good pasture such as blue grass, clover, alfalfa or rape.

At the Pennsylvania State College school of agriculture and experiment station, brood sows kept on blue grass or clover pasture receive about one and one-half pounds of shelled corn per head daily. One month before farrowing middlings and tankage are added to the ration and the amount fed daily is increased.

Proper shade is another important item in caring for brood sows. If there are no trees in the lot a temporary shelter may be erected with little or no expense except the labor involved. It need not be anything more than posts driven into the ground and covered with a roof. A good circulation of air will be provided by a shade built with a sloping roof so that the lower side is 4 feet from the ground and the upper side 6 feet. The size of the shade will depend on the number of sows involved. A shade protects from both sun and cold rains.

PREVENTING LICE.

Pigs on pasture should have a clean, dry, well ventilated shelter to guard against exposure to storms, and to supply shade. A concrete wallow will add to the pigs' comfort, and a layer of oil on the water will keep down lice. Clean bedding also helps to keep away lice, as will an oiled sack on a rubbing post, or sprinkling the pigs with crude oil every two weeks.

WORM REMEDY.

A hog conditioner and worm preventive recommended by the Ohio Experiment Station, may be made as follows: Slake one bushel of burned lime and eight pounds of copperas together. When cold add eight pounds of sulphur and mix with four pounds of salt and enough wood ashes to make three bushels of the mixture. Put in a box on the feeding floor and keep available for the pigs.

PRECAUTIONS AGAINST HOG CHOLERA.

The control of hog cholera is fundamental in a section where swine are raised in any considerable number. Unfortunately, hog cholera must be controlled by preventive means rather than by curative processes. So far scientists have not developed any treatment that will restore animals sick with this disease. Consequently, a campaign of prevention must be inaugurated. It is safe to condemn without reserve all so-called hog cholera cures, and the animal husbandman of the New Jersey Agricultural Experiment Station is prompted to issue a warning at this time against the use of any product or process that it is claimed will cure animals actually infected with cholera. The serum alone treatment provides temporary immunity. The serum simultaneous treatment establishes permanent immunity. Competent veterinarians should be appealed to for administering the treatment in both instances, as disappointment will be the outcome of temporizing with this disease.

HOG CHOLERA SERUM.

Hog cholera serum, furnished free to the farmers of Pennsylvania by the State Livestock Sanitary Board, has been the means of saving thousands of hogs each year and in reducing the mortality from the disease in the past five years from 95 per cent. to 20 per cent. It is estimated that the value of the serum furnished each year and the live stock saved by its use is close to $140,000.

The agents of the Live Stock Sanitary Board, acting in conjunction with the owners and licensed veterinarians of the state, keep a close watch for all diseases of live stock and the hog cholera work is one of the big features. In 1910 when the state began to make hog cholera serum on the state farm in Delaware county the percentage of deaths occurring among infected hogs was between 95 and 100 per cent., but with the serum treatment and attention to sanitary conditions the percentage has been gradually reduced, until today only about 20 per cent. of the animals in infected flocks are lost.

Taking the stock to the fair in a motor truck insures its safe arrival, shortens its stay away from home and helps win the blue ribbons by keeping the animals in good condition

SAVING THE MANURE.

Hog manure is usually left where it is dropped, and in many cases this method of disposal is economical, but in others it may be very wasteful. Where hogs are fed concentrates the manure is one of the richest produced on the farm. F. L. Duly, of Missouri College of Agriculture, mentions three principal ways by which the manure from hogs may be returned to the land: (1) Pasturing crops; (2) establishing temporary feed yards; (3) hauling the manure to the field.

When possible the first method is usually most practical and requires least expense. Where crops of any sort are pastured by hogs the manure is returned directly to the land. This is one strong reason for hogging down corn, for it not only saves the labor of harvesting the crop, but requires no hauling of the manure back to the field and entails no waste of fertility in transfer.

On many farms it has been found good practice to establish temporary feeding places in the pasture or field so that the manure will be deposited where most needed. This may sometimes cause a little extra labor in feeding, but it saves both the solid and liquid manure and reduces the amount of filth about the barnyard and minimizes the danger of disease. When it is necessary to feed hogs in closed lots the manure should be collected and protected from leaching until it can be hauled to the field. There is probably too great a tendency to place the feeding pen on a steep hillside or near ditches where a large part of the manure is carried directly into the streams by heavy rains or lost through leaching. This may be an easy way to clean the pens occasionally, but it is extremely wasteful of fertility. As a rule, when hogs are lot fed practically all the manure is lost. There was never a time when manure was worth so much as it is today, and every effort should be made to save it.

SKIM MILK FOR FALL PIGS.

Skim milk is of great assistance in growing and fattening pigs, particularly during the first few months. The economy of its use depends upon the difference in price available to the farmer for whole milk and for cream, and such factors as the cost of other feeds and the amount of skim milk fed in conjunction with the grain ration. Experiments show that a 100-pound pig, if given all the milk he will take, will consume as much as three or more gallons daily in addition to the grain ration. However, if the greatest economy is to be realized, the milk should be limited to 2 to 3 pounds for each pound of grain fed per day.

The Animal Husbandry Department of the New Jersey Agricultural Experiment Station recently conducted a feeding trial with skim milk for market pigs. Two lots of 10 pigs each were used. The pigs were of similar age, weight and breeding at the outset. Lot No. 1 received shelled corn, wheat middlings and digester tankage. Lot No. 2 received the same feeds plus 50 pounds of skim milk per day. A self-feeder supplied the grain rations for both lots. The increase in gains made by the skim milk lot over the cost of the grain justified the feeding of 5 pounds of skim milk per pig at a cost of 53 cents per hundred pounds for the milk. Furthermore, the pigs grew much faster and would be ready for market at a much earlier date.

The skim milk should be pasteurized if from tubercular cows, as young pigs are highly susceptible to the disease. There is practically no difference between feeding the milk sweet or sour so long as one method is adhered to regularly.

Sheep for the Farm

There are two primary reasons for starting farm flocks of sheep. In the first place, the nation normally produces but about one-half of its wool supply and will need in the months to come far more wool than in times of peace. The foreign supply is largely cut off and the nation's need of wool is so serious that unusual effort must be made toward increased production or the problem of clothing our armies and civilian population will be a most serious one. In the second place, a small flock on the farm yields a double source of profit in the mutton and wool and carries other advantages in connection with diversified farming. Wool now sells at 50 to 60 cents per pound. Lambs have sold in Chicago at the unprecedented price of $20 per hundredweight.

A plan has recently been proposed by which one million ewe lambs that would otherwise go to slaughter will be saved from that end and sent to farms in various parts of the country, according to E. J. Giddings, of the Idaho Animal Husbandry Department. The wool situation from a national point of view is so serious that the national government has encouraged this plan looking toward increased production of both mutton and wool. Certainly ewe lambs should not be sent to slaughter this year except for unusual reasons.

Pure-bred ewes are not necessary to start a flock of sheep, and if the owner has had no experience with sheep he should start with grades. The farm flock should consist of 10 to 50 head of ewes. Less than 10 take time and attention and yield a small income. More than 50 become a large problem in connection with the farm unless special facilities are available for sheep.

Thrifty ewes with reasonably tight fleeces of fine, medium or long wool blood are suitable for a foundation. The ram to head a flock should be a pure-bred of either black face or long wool blood. The Hampshire, Shropshire or Oxford ram sires growthy lambs of thick conformation that sell well for mutton. If one likes the long wools he should use a thrifty, deep-bodied, strong-backed and ample fleeced Lincoln or Cotswold.

Protect Sheep from Dogs

A sheep corral is nothing less than an insurance against sheep killing dogs, which have constituted one of the greatest obstacles to sheep raising in Pennsylvania. Sheep may be driven into the corral at night, since sheep losses usually occur at night.

On the farm of the Pennsylvania State College a corral surrounded by a dog-proof fence is provided. This fence is five feet high and is constructed of woven wire. At the base, two inches from the ground, is a barbed wire. Two barbed wires, also, are stapled at the top, the first four inches above the woven wire and the second eight inches above the first. In all the fence is about six and one-half feet high.

The corral should be large enough to maintain a good stand of grass at all times. An acre is sufficient to accommodate 100 head of mature sheep. Dividing the corral into equal parts and alternating the sheep on each portion every ten days is a good practice. Shade is desirable. Provided it is well drained the apple orchard would make an ideal location for a corral.

An open shed with southern exposure and good drainage, built in the corral, protects sheep from cold rains and thus materially lengthens the pasturing season. The equipment, including fence and shed for 100 mature sheep, costs about $125. It affords dog protection, simplifies the breeding of ewes, the feeding of grain and the weaning of lambs and safeguards against exposure to severe weather and wet quarters.

"In summer, cows that fight with flies Yield pails of milk of smaller size."

The dairy cow can supply about one-fourth of a family's food in the form of dairy products.

Other People's Business

(Continued from page 292)

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Before Justin could reply, Robert Hornblower was on his feet. Another startling transformation had come over the old man. Years and decrepitude fell from him like a discarded garment. As he advanced upon Justin, his fists clenched, he actually looked a formidable figure.

"You get out of my house, you sneaking, lying swindler. You clear out and never open your head to me one word about your damned old company or I'll—"

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Ware rose with as much dignity as the situation permitted. Few men can feel themselves the target of the scorn of three honest people and not wince, and Justin, whatever his weaknesses, did not lack sensibility.

"If you wish to accept Miss Dale's version of the matter, it is immaterial to me. I have given you more time than I could well afford to spare so small an investment, because I remembered you as my boyhood friends. I shall be glad to drop the matter." And then, quite against his will, he looked at Persis.

She sat straight and pale, her eyes steely, her lips grim. And once he had kissed those lips, and those contemptuous eyes had poured into his, faith and love unstinted. As he stumbled toward the door, the thought crossed his mind that the boy who had won the love and respect of Persis Dale was not the poor dolt he had thought him. The years had brought loss as well as gain.

"Good morning." He made an effort to speak with his customary easy self-possession, and Mr. Hornblower's answer was to slam the door upon him. "Good riddance to damned bad rubbish," he roared.

"Robert!" screamed Mrs. Hornblower. "Profanity at your age. Twice in five minutes."

"Hold your tongue!"

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"What makes you look that way?" cried Celia, clutching Persis' hand. "I don't like it."

"What way, child?"

"As though you was a widow."

Persis laughed, thereby diminishing her resemblance to the mourner of Celia's fancy. With a child holding fast to each hand, and the others prancing about her and getting underfoot like so many kittens, she made her way indoors.

"Children been good, Mary?"

"Why, yes'm," Mary admitted with reserve. "I gave Algie that cough mixture same as you said, and Malcolm he kept coughing fit to tear his throat to pieces. Betty says he likes the sirupy taste. And Celia teased the baby kissing her till she got her crying."

"I like the taste of the baby," remarked Celia, who had lent an attentive ear to the account of the family misdemeanors. "It's like tooth powder, the pink kind."

"A letter came for you, Miss Dale. Now, my gracious, what's hapepned to it? I put it right here on the table."

Inquiry divulged the fact that a game of postman had been in progress in the course of the morning, various letters from Persis' desk being posted at different points about the house to await collection. After some search the latest arrival was discovered under the cushions of the couch and Persis opened it with interested haste, its size and weight immediately suggesting the nature of its contents. Her premonition was confirmed by the engraved enclosure whereby Mrs. Honoria Walsh announced the marriage of her niece, Miss Enid Randolph, to Mr. Washington Thompson on Tuesday, June the third.

Persis sat gazing at Enid's wedding cards while the unhappy face of the girl in the hotel writing room grew distinct before her mental vision. And as she pondered, the hate that had looked at her out of Justin's eyes suddenly became a thing of trivial importance, and Mrs. Hornblower's sobs and shrieks even less worthy of consideration. She had prevented this girl, a stranger, from making shipwreck of her life. She had kept an elderly couple from disappointment and loss and possible poverty. The office of meddler-in-chief might frequently be thankless, but it was not without its own peculiar perquisites and compensations.

"Two good jobs done and off my mind," thought Persis, and then aloud: "Mary, if there's anything in the house for sandwiches, I believe we'll all go on a picnic this afternoon. I feel like celebrating."

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The pigs which are reported to have a pernicious cough may have lung worms. If these pigs are allowed plenty of exercise and kept in good thrifty condition, there is very little danger of serious results. If the pigs are closely confined, it is well to thoroughly disinfect the sleeping quarters. The quarters should also be kept as free from dust as possible. Mud holes in the lots should be filled to prevent the pigs from wallowing in the mud. There is no practical medical treatment. Feeding a properly balanced ration and keeping the quarters clean is the best way of handling this trouble. W. H. T.

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Fowl cholera is rare in this country. When a flock is attacked the whole flock rapidly becomes infected and deaths are more or less rapid. In all probability your case is one of the many parasites that infest the intestinal tract and may be successfully treated with a teaspoonful of sweet oil mixed with a teaspoonful of turpentine.

Cholera is distinct in its symptoms—pale comb and wattles, never dark or blue. Constant, copious diarrhoea, crop always distended. Nearly always there is intense thirst. Feathers are ruffled, wings droop, head drawn close to body and the bird separates itself from the flock, dying in about three days on an average. All cholera cases become quite emaciated and when lightly touched with the finger fall over. There is no cure for cholera—sanitation is the only means of prevention other than not introducing the disease on the premises through bought stock. F. V. L. T.

EVERY FARM SHOULD SHOW ITS COLORS

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We have secured a limited supply of handsome American Flags of a really excellent quality of specially prepared, soft, moth proof bunting, stripes sewed with double thread, colors weather and sun-proof—a flag we can recommend most highly in every way. We have this flag in two sizes—3x5 feet and 4x6 feet—and we wish to distribute these among our readers in the Middle Atlantic States, who will in return help us to secure more readers in their vicinities. Our friends will find it no trouble to secure a few one-year subscriptions to The Practical Farmer if they will tell their neighbors *why* they are our friends—why they like our paper and how they have found it helpful. Since we seek new subscriptions only in the Middle Atlantic States we are obliged to confine our flag offer to readers in the states of Pennsylvania, New York, New Jersey, Delaware, Maryland, Virginia and West Virginia. To farmers in these states we will send these beautiful flags, free and postpaid for new subscriptions from their neighbors, as follows:

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We will be glad to send sample copies for distribution and suggestions as to how to obtain subscriptions, and will *reserve* for a limited time one of these flags (either size) for any reader in the states named who will write us promptly of his intention to earn one. We suggest that you write immediately as our supply is limited and the price of flags is increasing so rapidly that we will be unable to continue this offer when our present supply is exhausted.

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Why Not Produce More Beef?

By J. ALDUS HERR

THERE never has been a time when the production of beef was as necessary in the United States as at the present crisis. The production of beef in Pennsylvania is an industry that has long been established in certain sections, and in a number of counties it is an established part of good farm practice. Many changes have taken place in the last decade or two, but I believe I am safe in saying the farmer who has continued through all the changes of low and erratic prices has been generally successful, and has found a good and convenient place to market a large amount of his farm products near home in addition to keeping up his soil fertility, while in many instances the farmer who has not fed cattle has depleted his farm and left it in a less productive condition.

When the writer was a mere boy, many of the farmers of eastern Pennsylvania had distilleries and much of the grain produced on the farm found a good market through this channel. The refuse, known as swill and malt, was utilized to feed cattle and hogs, and made both delicious and economical meat. In time the individual distillery became a thing of the past, but many of the farmers being accustomed to this line, or routine of good farm practice, found it profitable to continue feeding cattle, without swill or malt, by substituting corn, oats, bran and a few of the by-products of the mills. However, as the far West was opened up for habitation, herds of beef cattle began to increase and this kind of live stock became more plentiful; as a result, prices declined and the business became less profitable, resulting in many farmers going out of the production of beef, and becoming specialists along other lines of farm life.

The future fertility of our soils depends very largely on the growing of live stock of one kind or another. There never has been a time when it required a greater amount of intelligence and research along agricultural lines than the present. The farmer who enters the cattle industry to breed and develop profitably and make it a success, is a person of more than ordinary intelligence, and must have a large amount of perseverance, considerable capital and much faith to back up the proposition, especially when prices are as erratic as they have been the last few years.

Plenty of Silage Puts on the Cheapest Gains

While Pennsylvania does not rank as one of the large stock growing states, and its industries are varied, there can be no valid reason why many of its acres should not be producing beef cattle with profit to the grower, and also furnish the consumer with good, delicious meat. In our state there are thousands of acres of rolling and mountain land not adapted to the plow, that should be utilized for the growing of beef cattle. Many acres are covered with a luxuriant growth of natural grass, have abundant streams of fresh water, and still not a sign of a hoof is to be seen. Train load after train load of cattle are brought into Pennsylvania every year, some to be stable fed, and many others for direct slaughter, that should be bred and developed on the broad home acres. This, in my judgment, is not good husbandry. Much of this beef could be produced within the bounds of our own state, giving additional labor; and a large increase in capital that would circulate in the community where the cattle are produced, and prove a large asset to the state as well. It would likewise make a good home market for a vast amount of roughage that annually goes to waste. High prices have caused many persons to dispose of much of their breeding stock, which, in my opinion, is a serious mistake. By so doing we "kill the goose that lays the golden egg," and we eventually will pay dearly for lack of good judgment. For us to eat sirloin steak some one must grow and feed beef cattle, which means labor and expense. To grow calves some one must keep cows which must be fed and attended to; and at present many of these producers of animal life find their way to the butcher's block and are slaughtered, thus curtailing the line of reproduction.

Who is to blame? Certainly not the breeder of cattle. Only a few years ago the business was not profitable and many farmers were driven out. All farm labor is worthy of fair compensation, and our calling is the most dignified and respectable, because "the farmer feeds them all." The world at large must depend upon the results of the tilling of the soil. The time is fast coming when the consuming public will learn this fact, and pay very dearly for their belated knowledge of farm life.

In breeding stock of any kind so few persons realize the importance of a good pure-bred sire, it really being half of the herd. From practical experience and observation, I am convinced that the person who enters

There is Plenty of Room on Eastern Farms for Such Hereford Herds as this to Profitably Utilize Waste Pasture, Eat the Roughage and Help Solve the Labor Problem

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Chicken Cholera.—Mrs. E. J. S., Pennsylvania writes us: "Chicken cholera gives me great trouble among my chickens during the year. Real often some get sick and die in a day or two. Clean chicken house once a week, spray with whitewash and use other disinfectants. Feed bran mash mixed with a poultry powder according to directions, and feed coal oil, too, with the mash sometimes. Feed wheat, oats, corn, etc. Please inform me what to do."

Fowl cholera is rare in this country. When a flock is attacked the whole flock rapidly becomes infected and deaths are more or less rapid. In all probability your case is one of the many parasites that infest the intestinal tract and may be successfully treated with a teaspoonful of sweet oil mixed with a teaspoonful of turpentine.

Cholera is distinct in its symptoms—pale comb and wattles, never dark or blue. Constant, copious diarrhœa, crop always distended. Nearly always there is intense thirst. Feathers are ruffled, wings droop, head drawn close to body and the bird separates itself from the flock, dying in about three days on an average. All cholera cases become quite emaciated and when lightly touched with the finger fall over. There is no cure for cholera—sanitation is the only means of prevention other than not introducing the disease on the premises through bought stock. F. V. L. T.

EVERY FARM SHOULD SHOW ITS COLORS

WE WANT TO GIVE YOU A HANDSOME FLAG!

We have secured a limited supply of handsome American Flags of a really excellent quality of specially prepared, soft, moth proof bunting, stripes sewed with double thread, colors weather and sun-proof—a flag we can recommend most highly in every way. We have this flag in two sizes—3x5 feet and 4x6 feet—and we wish to distribute these among our readers in the Middle Atlantic States, who will in return help us to secure more readers in their vicinities. Our friends will find it no trouble to secure a few one-year subscriptions to The Practical Farmer if they will tell their neighbors *why* they are our friends—why they like our paper and how they have found it helpful. Since we seek new subscriptions only in the Middle Atlantic States we are obliged to confine our flag offer to readers in the states of Pennsylvania, New York, New Jersey, Delaware, Maryland, Virginia and West Virginia. To farmers in these states we will send these beautiful flags, free and postpaid for new subscriptions from their neighbors, as follows:

For only *three* new one-year subscriptions at 50c each we will give one of the 3x5 flags.

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(Check or money order in full payment must accompany subscription lists.)

Surely This is an Easy Way to Obtain a Handsome American Flag!

We will be glad to send sample copies for distribution and suggestions as to how to obtain subscriptions, and will *reserve* for a limited time one of these flags (either size) for any reader in the states named who will write us promptly of his intention to earn one. We suggest that you write immediately as our supply is limited and the price of flags is increasing so rapidly that we will be unable to continue this offer when our present supply is exhausted.

THE PRACTICAL FARMER
P. O. Box 1321 Philadelphia, Pa.

State Experiment Sta

The Practical Farmer

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Why Not Produce More Beef?

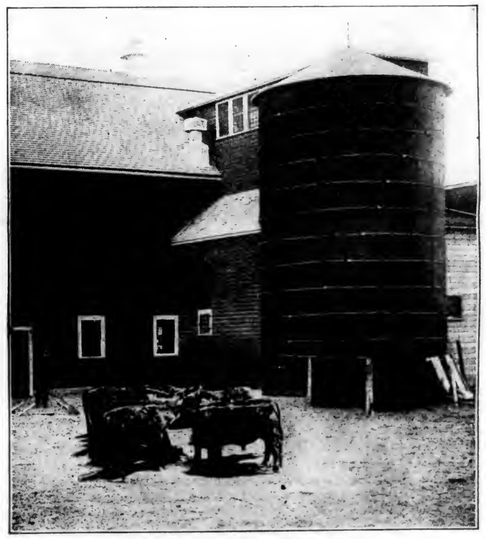
By J. ALDUS HERR

THERE never has been a time when the production of beef was as necessary in the United States as at the present crisis. The production of beef in Pennsylvania is an industry that has long been established in certain sections, and in a number of counties it is an established part of good farm practice. Many changes have taken place in the last decade or two, but I believe I am safe in saying the farmer who has continued through all the changes of low and erratic prices has been generally successful, and has found a good and convenient place to market a large amount of his farm products near home in addition to keeping up his soil fertility, while in many instances the farmer who has not fed cattle has depleted his farm and left it in a less productive condition.

When the writer was a mere boy, many of the farmers of eastern Pennsylvania had distilleries and much of the grain produced on the farm found a good market through this channel. The refuse, known as swill and malt, was utilized to feed cattle and hogs, and made both delicious and economical meat. In time the individual distillery became a thing of the past, but many of the farmers being accustomed to this line, or routine of good farm practice, found it profitable to continue feeding cattle, without swill or malt, by substituting corn, oats, bran and a few of the by-products of the mills. However, as the far West was opened up for habitation, herds of beef cattle began to increase and this kind of live stock became more plentiful; as a result, prices declined and the business became less profitable, resulting in many farmers going out of the production of beef, and becoming specialists along other lines of farm life.

The future fertility of our soils depends very largely on the growing of live stock of one kind or another. There never has been a time when it required a greater amount of intelligence and research along agricultural lines than the present. The farmer who enters the cattle industry to breed and develop profitably and make it a success, is a person of more than ordinary intelligence, and must have a large amount of perseverance, considerable capital and much faith to back up the proposition, especially when prices are as erratic as they have been the last few years.

While Pennsylvania does not rank as one of the large stock growing states, and its industries are varied, there can be no valid reason why many of its acres should not be producing beef cattle with profit to the grower, and also furnish the consumer with good, delicious meat. In our state there are thousands of acres of rolling and mountain land not adapted to the plow, that should be utilized for the growing of beef cattle. Many acres are covered with a luxuriant growth of natural grass, have abundant streams of fresh water, and still not a sign of a hoof is to be seen. Train load after train load of cattle are brought into Pennsylvania every year, some to be stable fed, and many others for direct slaughter, that should be bred and developed on the broad home acres. This, in my judgment, is not good husbandry. Much of this beef could be produced within the bounds of our own state, giving additional labor; and a large increase in capital that would circulate in the community where the cattle are produced, and prove a large asset to the state as well. It would likewise make a good home market for a vast amount of roughage that annually goes to waste. High prices have caused many persons to dispose of much of their breeding stock, which, in my opinion, is a serious mistake. By so doing we "kill the goose that lays the golden egg," and we eventually will pay dearly for lack of good judgment. For us to eat sirloin steak some one must grow and feed beef cattle, which means labor and expense. To grow calves some one must keep cows which must be fed and attended to; and at present many of these producers of animal life find their way to the butcher's block and are slaughtered, thus curtailing the line of reproduction.



Plenty of Silage Puts on the Cheapest Gains

Who is to blame? Certainly not the breeder of cattle. Only a few years ago the business was not profitable and many farmers were driven out. All farm labor is worthy of fair compensation, and our calling is the most dignified and respectable, because "the farmer feeds them all." The world at large must depend upon the results of the tilling of the soil. The time is fast coming when the consuming public will learn this fact, and pay very dearly for their belated knowledge of farm life.

In breeding stock of any kind so few persons realize the importance of a good pure-bred sire, it really being half of the herd. From practical experience and observation, I am convinced that the person who enters

There is Plenty of Room on Eastern Farms for Such Hereford Herds as this to Profitably Utilize Waste Pasture, Eat the Roughage and Help Solve the Labor Problem

INTENTIONAL SECOND EXPOSURE

the business of beef production intelligently, and stays by the business for a number of years will be successful. First of all he should select the best beef type adapted to his locality and object in view. There are four predominant beef breeds: Durham (or Shorthorn), Polled-Angus, Hereford and Galloway, each good of its kind and type.

Owing to the enormous advance in feed the last year or two, it has become essential to feed more economically than ever before, if you are to have a profit for your labor and money invested. This can be done to a very large extent by having a typical beef cattle and growing a large part of the feed consumed. It has been proved that an animal kept for breeding purposes can be maintained profitably with good silage and a small amount of cotton seed meal in addition. One of the new ideas for eastern Pennsylvania is to let the dam nurse the calf until well developed, probably seven or eight months old, and have her bred to produce another calf within the year. By so doing you greatly reduce the cost of production by reducing the labor and utilizing much cheap feed. Since the advent of the silo much valuable food can be taken care of that formerly was largely let go to waste.

It has been the writer's custom for quite a number of years to stable feed thirty head of beef cattle every winter. While it has not been a mint of money, it has proved a profitable proposition. Last winter I superintended the feeding of twenty additional beef cattle. These were grade Durhams that cost $7.30 per 100 pounds, and averaged in weight, when bought, 765 pounds. For two months they received 40 pounds of poor silage and alfalfa hay. After that time a small amount of corn-and-cob meal was added, two pounds per day, and one pound cotton seed meal divided in two feeds. This was gradually increased until March 1st they were receiving twelve pounds corn-and-cob meal and three pounds cotton seed meal, and the silage was reduced to 35 pounds per day, and what hay they would eat in addition. They were fed six months and were sold on foot, scales not being convenient to weigh them. They cost $1116.90 and sold for $2320. The cost of feeding and labor for the six months was $829.50, as follows: 250 bushels of corn at $1.15, $287.50; 75 tons poor silage at $3, $225; 7 tons alfalfa hay at $12, $84; 3 tons cotton seed meal, $143; labor, part time of one man at $15 a month, $90. During the feeding period 116 wagon-loads of good stable manure were realized, and a reasonable value of $1 a load was placed on it. This made a total cost of $1946.40 for the purchase, feed and care of the cattle during the six months and the amount realized was $2320 for the sale of the cattle, and $116 for the sale of the manure, a total of $2436, making a profit of $489.70, or $24.45 per head. Had they received cotton seed meal two months earlier, I believe the profit would have been increased considerably. In concluding, I wish to say I am positively a farmer who includes cattle husbandry in his operations, and believe that the production of more beef on our farms will prove a very great factor in restoring the food production of the United States.

Pennsylvania.

Seed Corn Kernels

A GOOD selection of colonels for the army is scarcely more important than a good selection of kernels for next year's supply of seed corn. Both might well be judged on past performances, says the U. S. Department of Agriculture.

Germination tests do not tell the whole seed corn story. Corn that will come up but that will produce an unprofitable crop is worse than seed which won't grow at all, because it fools a farmer into using labor and land that are lost. Know what your seed will do by selecting it yourself in the field when the grain ripens.

Cheap seed corn may prove very dear; the seed corn that produces the best crop is the cheapest, no matter how high the cost may seem.

Early Fall Field Work

A. E. GRANTHAM

ON most farms there is some manure that must be hauled out during September. Where this can be applied to the best advantage will depend on the type of farming conducted. It is the general practice to spread the manure on the sod land that is to be turned for corn next spring. If the land is rolling and the sod rather poor some of the manure may be washed away by the winter rains. Where the soil is sandy and open and the winters mild a considerable portion of the nitrogen may be lost through leaching. The latter is true particularly when the manure is fairly well rotted when applied.

Manure may be used to top dress the young clover and timothy now in the wheat stubble. More of the plant food is likely to be utilized by the plants under these conditions than where an old sod is treated. This use of manure will greatly aid in stimulating the growth of the hay plants next spring. A third method is to apply the well rotted manure to the land that is already plowed for wheat. If the manure is well harrowed it serves two purposes—supplies the wheat with the needed plant food, especially nitrogen and potash, and assists in getting a better stand of timothy and clover in the wheat. Since potash is so scarce it will pay to use manure in this way.

Manure should not be plowed under for wheat, as the plant is a shallow feeder, especially in the early period of its growth. Still another method is to top-dress the wheat in the late fall and winter. This not only protects and feeds the wheat, but greatly increases the possibilities of securing a catch of spring-sown clover. It is the opinion that less manure should be plowed under direct, but it should be used to top-dress either wheat or grass, thereby insuring the grass crop, which means a better sod to turn under.

Off for a Day at the Fair

We no longer need limit our trip to the small fair near home, as the farm automobile enables us to travel farther and see the "big ones."

DRILLING WHEAT IN STANDING CORN.

Very often corn matures so late that it is impracticable to sow wheat after the corn crop is removed. Where the land is fairly free from weeds and the corn is not down a 1-horse wheat drill may be used to seed the wheat. This drill is made in either the disk or hoe pattern and is arranged to distribute fertilizer and sow grass seed along with the wheat. The drill has five hoes or disks, the two outer ones being adjustable to the width of the row.

It is a good plan to use a mower wheel as a drag and level the corn rows in advance of the seeding. In fact, the dragging may take place any time after the corn is laid by. We have found the mower wheel useful in forming a mulch for the corn as well as leveling the land for the drill. It will not be necessary to use a drag if level cultivation was followed in the corn. This method of seeding wheat is quite common in some sections of the Middle West and has been used successfully in the East. The saving of labor as well as getting the wheat seeded earlier are items to be considered by the grower.

WINTER RYE.

Rye may often be grown to better advantage than wheat; land that is a little too wet for the best results with wheat will give a good yield of rye. In other words, rye is more resistant to weather conditions than wheat and is less exacting in its demands for plant food. There are times when for one reason or another it becomes too late for seeding wheat. In this case rye may be substituted. The price of rye has advanced proportionately with wheat and since the labor and plant food requirements are less than for wheat it will often pay where wheat will not

It is a mistake to think that it does not pay to fertilize the rye crop. The best results are obtained where the soil is in a good state of fertility. Rye is often considered an emergency crop, as it may be sown for grain or green manure or early spring pasture. If the land is fertile it often pays to pasture the rye in the late fall or early spring so that it will not grow too rank.

Rye succeeds best on clay and clay loam soils, although a fair crop may be secured on almost any type of soil. Four or five pecks of seed are usually seeded per acre for grain. If the rye is seeded early for green manure a smaller quantity is satisfactory.

THE USE OF RAW ROCK PHOSPHATE.

Owing to the advanced price of acid phosphate there will be a tendency on the part of some farmers to substitute raw rock phosphate. The war has prevented the exportation of the raw material, hence there is a renewed effort on the part of the miners of the raw rock to extend their sales in this country. The farmer should not be deceived. Experiments carried on by the various agricultural experiment stations of this country show that the raw rock cannot be used profitably except under certain conditions.

Since raw rock phosphate is insoluble in water it must be acted upon by the acids of decaying organic matter before it will become available. For this reason the raw rock can often be used to advantage in supplementing stable manure. Unless it is used in connection with stable manure or when a heavy crop of green manure is buried under there is little or no result on the succeeding crop. Eastern farmers in particular, should go slow in applying raw rock phosphate, as their land is generally low in organic matter. It is only where the soil is well supplied with organic matter, as is the case with the prairie soils of the Middle West, that profitable returns may be secured.

HARVESTING BUCKWHEAT.

Buckwheat should be cut before the first heavy frost. It is generally desirable to begin cutting as soon as the first set of blossoms have matured their seed. In some sections where the land is rough or stony a cradle is still used to harvest the crop. A self-rake reaper is often used. The bunches of grain are left in the swath a few days and then set up, unbound, in small shocks. These shocks are not capped, but a few stems are twisted about their tops to hold them in place. A self-binder is more generally used for cutting. The sheaves are then set up in long narrow shocks and not capped. Cutting should take place when the plants are slightly damp to prevent shattering. The cut buckwheat is usually left in the field in the shocks until threshing time. Stacking or storing in the barn is rarely practiced owing to the difficulty of getting the stems of the plant dry enough to prevent heating when placed in a mass. In some localities the buckwheat is flailed out. It must be quite dry if flailed. When a threshing machine is used the straw need not be so dry. In order to prevent splitting the seed and breaking the straw into small pieces the spiked concave is removed and a smooth concave or a fitted plank substituted.

Buckwheat straw contains about as much protein as timothy hay. It makes a fair roughage for stock, but they do not eat it as readily as legume hay. The straw makes a very good bedding material and decomposes quickly when mixed with manure.

Specialists of the U. S. Dept. of Agriculture estimate that the average annual loss due to the smuts of wheat and rye amounts approximately to 27,500,000 bushels. Treatment of wheat against stinking smut is fairly easy, not expensive, and 95% effective. Several methods are in use but the best is formaldehyde treatment.

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EDWARD T. WALKER, Managing Editor
THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS
W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE
F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES
J. C. Billingslea, 119-123 W. Madison St., Chicago.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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SEPTEMBER 1, 1917

From Soil to Sufferer

THIS is the slogan of the Overseas Acre Fund, an explanation of whose splendid work and purpose is presented on another page of this issue, together with an earnest plea for your help.

There is not an American farmer who does not admire the wonderful patriotism of the farmers in France and Belgium and who does not want to do everything in his power to relieve their suffering and to help them restore their war ruined farms.

No one but a farmer can fully realize what an undertaking it is to begin all over again and to re-place under cultivation, land which has been so completely devastated. We are sure there are few farmers who will not want to help within their means, in supplying implements, fertilizers, seeds, live stock and the other necessary farming materials, as well as the food and clothing to relieve the suffering, the extent of which few of us realize.

The Overseas Acre Fund originated among a group of farmers in New Jersey this summer and has met with spontaneous and wonderful success. Its purpose is to enable our farmers to give from their plenty, the proceeds from one acre of any crop, for the relief of their overseas brothers and allies.

The American Red Cross has agreed to expend this money exclusively for the benefit of the farmers of France and unoccupied Belgium and will use its best discretion as to the form of relief in each case.

This is a worthy cause. It affords an easy and practical way of doing what most every farmer must feel in his heart he would like to do. We hope that the response from our readers will be generous. Do not delay filling out and signing the pledge and sending it in. Your example will encourage other farmers to do the same. Tell your neighbors about this and urge them to fall in line. Extra copies of the announcement and of the pledge may be obtained from this office.

Setting the Price of Wheat

UNCLE SAM has gone into the business of buying and selling wheat, and as a start has formed a fifty-million-dollar corporation. The next step he has to settle is to determine what price he will pay for this year's crop. A minimum of two dollars a bushel for the 1918 crop was set by Congress in passing the food control act, but the 1917 price has not yet been determined. A special committee has been appointed by the President to settle this momentous and before unheard of question for this country. On some sides we hear opposition to the general plan of fixing prices not only for wheat, but for the other commodities contemplated. This is no time for differences, however, if by only a temporary fixing of prices we can eliminate speculation in foodstuffs and help our allies overseas withstand conditions long enough to put the world on its former peaceful basis.

The wheat price committee, which will meet in Washington at once, consists of H. A. Garfield, president of Williams College, chairman; Charles J. Barrett, president Farmers' Union, Union City, Georgia; William N. Doak, vice-president Brotherhood of Railroad Trainmen, Roanoke, Virginia; Eugene D. Funk, president National Corn Association, Bloomington, Illinois; Edward F. Ladd, president North Dakota Agricultural College, Fargo, North Dakota; R. Goodwyn Rhett, president Chamber of Commerce of the United States, Charleston, South Carolina; J. W. Shorthill, secretary National Council of Farmers' Co-operative Associations, York, Nebraska; James W. Sullivan, American Federation of Labor, Brooklyn, N. Y.; L. J. Tabor, Master Ohio State Grange, Barnesville, Ohio; Frank W. Taussig, chairman Federal Tariff Commission, Washington, D. C.; Theo. N. Vail, president American Telephone & Telegraph Co., New York City; Henry J. Waters, president Kansas State Agricultural College, Manhattan, Kansas.

A survey of this list will disclose the fact that farmers are well represented by men whom we have every reason to believe will look after the farmers' interests as they have in the past. While they are deliberating for us let us keep the plows going, not only because it is good patriotism but also good business, but never lose sight of the fact that man and beast cannot live on wheat alone, and where a good rotation is being carried out successfully even present conditions do not warrant a change.

Keeping the Wolf from the Door

IT is not so much the amount of food raised each year which counts as it is the amount saved until it can be used. We have seen a great propaganda carried on throughout the country this year to stimulate drying and canning the perishables and now we are approaching the time to store the semi-perishables. All of us have seen fields of pumpkins frozen black, potatoes allowed to rot and cabbage never harvested. If we stop this year to think of the thousands who cry pitiably for food we will not waste even the smallest particle. Our allies are well supplied with men and money, but look to us for food—more food than we now think we will be able to send to them. Only by each of us saving our small share can there possibly be enough for all. How some of our readers have cared for some of their surplus in the past is well told in the "Experience Pool" of this issue.

New England growers with their crops equal to one-tenth of all the potatoes produced in the United States each year are taking advantage of the new financial situation under the Federal Reserve System. If potatoes are stored in approved local warehouses loans may be obtained upon the storage receipts from member banks of the reserve system for ninety days at a rate not to exceed six per cent. As the requirements do not call for a specially constructed storage house, merely a satisfactory place for keeping potatoes, other groups of growers might find it well to take advantage of this new plan if they need money and still want to hold their crop.

Pennsylvania's New Experiment

NO one seriously denies the fact that there is too much difference between what the consumer pays and what the producer receives. Setting matters right, however, is a task which no one has accomplished for a long period over a large territory. Governor Brumbaugh, of Pennsylvania, in recently signing the bill creating a state bureau of markets, possibly had in mind the unsatisfactory marketing conditions, but under the present provisions of the law little early relief can be looked for. The law gives the new bureau little power which was not already possessed by the Department of Agriculture, and most of its power lies in advisory work rather than mandatory.

The director of markets at the head of the new bureau is Mr. E. B. Dorsett, of Tioga Co., Pa., who is known all over the state through his farmer's institute and Grange work. His experience as an organizer, and the grasp he has of state-wide conditions, will stand him in good stead with his new work. The field is broad and the opportunity wonderful for the development of a system which will place Pennsylvania in the fore rank. We need not look for the millennium under the present law, but the foundation can be laid so that a future legislature will enact a law in keeping with the importance and possibilities of the bureau.

School as Usual

IN a few days our boys and girls will be in school again and in a few weeks our young men and young women will be taking up their college studies. Never, we would say, were their opportunities greater and greatly to be pitied are they who can continue their education and won't. If there is one thing more than any other which this world war is demonstrating it is the value of training, not only for the soldier but the mechanic, the professional man and the farmer. It has been said that for every man at the front five are needed back home to support him. Upon the capability of the five rather than the marksmanship of the one the decision will finally rest. As the war continues the demand for trained men is bound to increase. When victorious peace finally does come, opportunities for trained men and women will be more plentiful than ever in the work of reconstruction and development which will be world-wide.

It would seem that "war time economy" should be evident in college life this year to the same extent it was at the last graduation season of several of our leading institutions and make it easy for some who might be counting the cost of a year away from home. There is always a demand for money to keep up former customs and an effort to have them just a little better. Maybe class leaders this year will see the chance to call a halt along this line, much to the satisfaction of many who have better uses for their money.

IT is interesting to note after only its first year's service, that co-operative banking systems under the federal farm loan act have been established in every state in the Union, and that loans to farmers are now being approved at the rate of nearly one million dollars a day. These loans, as has been stated before, are made on farm mortgages at the flat rate of five per cent., for the purpose of land purchase; refunding existing indebtedness; live stock purchase; clearing and draining land; construction of improvements and the purchase of fertilizer and any equipment necessary in the cultivation of land. The amount of money loaned so far under the terms of the act shows the need which existed for supplying cheap money on one of the best securities available—the farm mortgage. It has been figured that if all farm mortgages in the United States were transferred to societies under the farm loan act, that the annual saving in interest charges to the farmers would amount to nearly $100,000,000 annually.

ONE sure way to increase next year's corn crop is to begin now to select and care for the seed. A walk through your corn field will tell at a glance the ears which can be counted on to give a good account of themselves next year. If they are marked, carefully saved, and tested next year before planting think of the advantage you will have over the man who uses unknown seed except for what some one tells him regarding it. There is a big opening in every community for the farmer who will take special care of his seed of all farm crops, and then sell it to his neighbors at a price commensurate with the care taken.

INDICATIONS seem to point to cheaper feed this winter. The recent decision of the food administration that the allies purchase flour instead of wheat will furnish a lot of wheat by-broducts for home use. Regulations regarding the export of concentrated feeds has caused Southern firms to write North with a view of getting a market for cotton seed meal. Also the fact that corn can no longer be distilled into liquor will make a larger supply of that valuable grain for human and animal food.

Bulletin Helps for Farmers

"Potato Storage and Storage Houses," is the subject of a new 27-page fully illustrated Farmers' Bulletin, No. 847. It deals with the fundamental factors of construction and management of storage houses, as well as the methods of handling the crop that govern the condition of potatoes in storage, and should be in the hands of all persons who store potatoes in large quantities.

Tobacco growers will be interested in Farmers' Bulletin No. 819, entitled, "The Tobacco Budworm and its Control," which has recently been issued. The bulletin contains 11 pages describing and illustrating this destructive "weed" pest and tells how to control it.

Free copies of any Farmers' Bulletin may be had by addressing the Secretary of Agriculture, Washington, D. C.

The Garden in September

W. F. MASSEY

SPINACH.

A sowing of spinach, for wintering over for late winter and early spring cutting should be made from the first to the middle of the month, according to latitude. The object is to get the plants just strong enough to winter and not too large. Sow in rows 15 inches apart, and as the weather gets cold mulch heavily between the rows with manure. Use the Norfolk Savoy Leaved variety with smooth round seed. In fact, I never sow the prickly seeded spinach. Spinach will winter easily anywhere in the section around Philadelphia, but the manure mulch is to be used anywhere, and will be rotted enough by spring to feed it and leave the soil in fine shape for later crops.

EARLY CABBAGE PLANTS.

In the climate of Philadelphia the best time to sow seed of the Early Jersey Wakefield cabbage is about the middle of September. We sow the seed in a fertile bed and here transplant to the field in November. Northward it will be better to winter them in a cold frame, setting the plants about two inches apart all over the bed, and keeping them as near dormant as possible by keeping the sashes off in all weather 20 degrees above zero. Freezing down to 20 will not hurt them, and the sashes should be placed over the plants only when real severe cold threatens, and removed in daylight unless very cold. From Baltimore south the practice is to set the plants in the late fall. Some make sharp ridges 2½ feet apart over furrows heavily manured and set the plants low down on the south side of the ridges. This will do very well in the upper section, but farther south we have warm spells in the winter, and the plants get excited and grow tender and the return of cold will kill many. Here we run furrows and in them put not less than 1000 pounds per acre of a high grade fertilizer strong in nitrogen and phosphoric acid and little or no potash. Furrows are thrown over this from each side, and the ridge thus made is split with another furrow down the crest, and in this furrow the plants are set 16 inches apart and deep enough to cover the entire stem. Plants of Boston Market lettuce, or the Hanson, are set between the cabbages, as they will come out in spring before the cabbages need all the room. North of here the plants can be carried in frames like cabbage plants.

LETTUCE.

Seed of the Hanson and the Grand Rapids, sown the first of the month and set in a fertile bed 10 inches apart each way, and never allowed to suffer from lack of moisture, and urged by side applications of nitrate of soda, will make fine heads before cold weather. The middle of the month sow seed of the Big Boston lettuce for setting in the cold frames for heading around Christmas. With the double-glazed sashes this can be done anywhere, and with single sashes and straw mats to cover the glass on very cold nights the crop can easily be had in colder places than the Philadelphia section, as I know from practical experience. I use light portable frames made for three 6x3 feet sashes, and after growing the Christmas crop I can move a frame to fresh soil and plant another crop to head in early spring.

CAULIFOWER.

Cauliflower seed sown the middle of the month can be wintered in the same way as suggested for cabbage plants. But the best way to get cauliflowers to head early is to place six plants in a 3x6 feet sash and then fill in with plants of a close heading lettuce like the Tennis Ball. This lettuce will be cut out by New Year, and the cauliflowers should have then a dressing of nitrate of soda and allowed to grow and be protected with straw mats if single sashes are used, and in late February gradually harden the plants to the outer air, for by that time they will be pushing up near the glass. When hard freezing is over remove the sashes and frames to another spot where they can be used for hardening off the early tomato plants. These cauliflower plants will head in late April or early May. I once grew 1000 sashes in cauliflowers in this way and of the 6000 plants not a plant failed to head.

TURNIPS.

The flat strap-leaved turnips can still be sown early in the month. The Milan is the earliest, but the Purple Top Strap-Leaved is larger and better and will still make a crop. The Chinese Celestial radish can also be sown. These grow very large and are better than turnips when boiled.

EGGPLANTS.

Look out for the late brood of the Colorado beetles which often play havoc with the eggplants before they are noticed. This year eggplants and late tomato plants have been attacked by millions of aphides or plant lice. I sprayed mine with diluted sulphate of nicotine with some lead arsenate in it so that the spraying would answer for both the aphides and potato bugs. This summer there were so many potato fields around me that I had no potato bugs at all till August. Then, the potatoes being dug, the bugs were hunting for forage and in a few days my eggplants and tomatoes were swarming with them. The spraying was made every ten days in August.

LATE IRISH POTATOES.

Keep these rapidly cultivated level and shallow. The idea is to maintain a dust mulch on the surface to prevent the rapid evaporation of moisture. I do not hill up late potatoes, for the hilling would rapidly dry out, and the important thing is to conserve soil moisture.

SWEET POTATOES.

I am often asked if it is not best to pull the vines loose from the soil where they are apt to root. I have found that this will do more harm than good and never advise it. Some ask if it would not be well to cut some of the vines away where they grow very rankly. The leaves of any plant are the most important part of the plant in the making of seed or tubers, and the more good healthy leaves a plant has the better the crop will be if the plant food in the soil is well balanced. Where there is an excess of nitrogen and a deficiency of phosphoric acid the sweet potatoes may run to vine and make small potatoes. But the amount of nitrogen does not matter if it is balanced by a sufficient amount of phosphoric acid. Vine cuttings can still be set early in the month to make little potatoes for bedding in the spring.

LATE CABBAGES.

The cabbage plants set in August and intended for winter keeping should now have the best of clean cultivation and side applications of nitrate of soda to push the growth. Before they start to head lead arsenate can be used to destroy the green caterpillars. After heading begins dust the plants with airslaked lime in which a little salt is added, and repeat it if washed off by rain.

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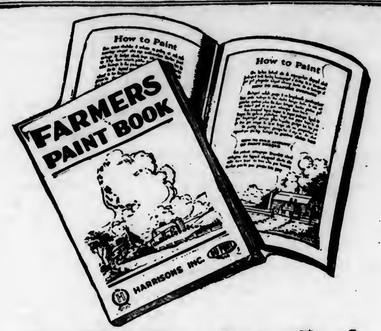

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Removing Stumps Near Buildings

PAUL R. STRAIN.

Last summer one of my neighbors residing on the same rural route as myself asked me if I could blast out of his lawn some locust stumps which had been there for about twenty years. I had often blasted stumps out that were right beside good fences without injury, and similarly stumps within 50 or 60 feet of dwelling or other buildings, but never before any quite so close as his bunch of eight stumps.

I told him there was no doubt I could blast them all out without injury to his dwelling if I only had a blasting mat, but to get one just for his job would make the cost most excessive, as I seldom would have use for one afterward, so I proposed instead to blast out the ones farthest from the house first and so gradually approach the house until it was unsafe to proceed farther.

The most distant from the house was about 45 feet away; the nearest, 5 feet from the wall of the house and only 7 feet from a window. The next closest was 7 feet from the wall and 9 feet from a window. Their diameters varied from 24 to 12 inches with an average probably of 16 inches each. Although long since dead, every stump was sound and some had long, spreading roots, outreaching 12 feet.

Beginning on the easiest I proceeded from them to the closer and therefore more difficult ones until the eight were completed, only striking the house once with a chunk from the second stump shot, which I had somewhat overloaded. Twenty per cent. dynamite was used with cap and fuse only and my only secrets of operation were striking the stumps all over with a sledge to ascertain their solidity and then loading deep in the ground under the point of greatest resistance to cause the blast to go nearly straight upward. Of course, it requires experience in estimating charges to so load stumps that they will not be thrown long distances, but if one gets his practice first on stumps away from buildings far enough that no damage can be done by flying pieces, he soon learns how much to use. This is important because it results in saving dynamite, too.

The two ladies of the house romained undisturbed in the house, until for safety's sake I asked them each time a stump was ready to fire to go outside on the side of the house away from the blast. The total bill for explosives and services was $4.45 paid on completion of the job, which they termed satisfactory. No pieces were thrown into the public road, which is 20 feet or more lower than the house and at no point more than 40 yards distant.

West Virginia.

Benefits of Soil Drainage

"Soils that are full of water do not produce the best of crops," says Chas. G. McLain, drainage expert of the Pennsylvania Department of Agriculture. "For instance the effect in a field that has been sown to wheat is very injurious. During the winter when the freezing occurs, the plants are heaved out of the ground and in many cases the crop is materially reduced. Why does this happen and how can it be prevented?

"During the process of freezing, the ground being full of water, the expansion that occurs can only be in one direction and that is upward and this upward movement, of course, carries the plant with it. When the thawing occurs the soil naturally settles back, but, of course, the roots of the plant do not settle back so much and this repeated freezing and thawing finally leaves the plant with so few roots in the soil that when the spring season comes the plant cannot get enough nourishment to keep it growing and it naturally dies, oftentimes causing great loss by the reduction of the crop. Oftentimes one sees whole fields that are spotted with these heaved out spots.

"This heaving can be largely done away with by installing a drainage system which will carry away this excess water, leaving the soil in a loose condition, and then when the expansion occurs from freezing it is in a lateral direction which does not heave and leave the plant roots bare when the thaws occur.

"It can easily be seen that by increasing the wheat yield a few bushels per year that the expense of drainage is a good investment. It not only helps the wheat crop, but all other crops grown in this particular field. Cash for the tile is all that is needed, as each farm has the labor and tools."

New Jersey Farmer Protests High Auto Express Charges

In our section of New Jersey there are numerous auto trucks taking people's produce to Philadelphia. We have taken advantage of these when we had only a few baskets to send to market. In the early part of the season produce was high and the six cents cartage charged didn't seem unreasonable, but later when produce prices fell cartage charges were raised to seven cents a basket Still the people paid it and raised no kick; later prices were still lower but cartage was raised to eight cents.

To give an illustration of farmers' profits, we once sent on truck 17 baskets of cucumbers. It took about three hours to go over patch and pick these. Our price received was 10 cents a basket, one cent commission was charged for selling and eight cents cartage, leaving one cent a basket, or 17 cents for raising and picking expenses. The truck carries 500 baskets a trip, making three trips a night, but allowing only 1000 baskets a night, at 8 cents a basket, brings them $80. Cost of gasoline and oil a trip, they tell us, is $2.50, making $7.50 per night, and say repairs average $2.50 more a night, making a total of $10, they have a clear profit of $70 a night for the owner, who is also the driver.

Why should he make so much when he has only invested about the same amount as a farmer? C. R.

New Jersey.

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Getting Eggs—the Poultry Problem

F. V. L. TURNER

In the adjustment of poultry management for the next few years, which has now become necessary through the abnormal conditions brought about by the world war, stricter attention to detail and rigorous economic practices are the factors which will raise the profit on poultry and its products higher than in normal times, even in relative ratio.

Under ordinary conditions the high price of eggs is conservatively put at 50 cents for a part of the season, with 30 cents as the yearly average; to produce a dozen eggs on five pounds of food at a maximum cost of 15 cents left a 100 per cent. profit to cover cost of investment, overhead and labor return.

While eggs will reach, in all probability, one dollar next winter, one dollar will not be the average; about 38 cents will be the figure for our year-round production. In the meantime the percentage of increase in feed cost is not 100 per cent. nor is it yet 50 per cent., therefore there is still a safe margin between production cost and sale price.

The average cost price to the individual in each case, is interdependent entirely upon the percentage of eggs that sell at high figures plus the quantity that sell at low figures—this is true regulation of prices, with the individual, and comes from his or her ability to get MORE high priced eggs. This is a detail, potent in its results.

It is rather firmly established that any old fowl will lay in the spring—nature requires this for productive purposes; such birds are a loss of the most vital kind because they reduce the space available for good layers, consume costly food to no purpose and expend labor that could be turned into profit. At the same time these spring layers, no matter how good looking, reproduce only their kind of worthlessness. This is another detail.

Getting fall and winter eggs, to sell at high prices, means that the spring and summer yields will be greater than in the case of a spring layer—the fall and winter layer rarely indulges in disastrous broodiness while the spring layer is usually a broody disaster. Another detail.

Though this detail immediately above does not mean everything that goes with the winter boarder and erstwhile spring layer and sitter, such as better stock, not alone females but males as well, it means also that the same results are obtainable from a flock of 100 good layers that can be secured from 150 hens that carry the usual percentage of drones—spring layers. This part of the detail involves the economic side of the industry, the cutting out of idle machinery consuming fuel and labor, just as any industry would adjust its management to either hold its present rate of profit or to increase it.

Since the result from operating a poultry plant of good, or fall and winter layers, means more eggs in the season of lowest price the gross income is increased without increasing the cost of operation, feed and labor. This is true economics. In ridding a plant of useless machinery, drones, the capital investment is lowered and actual cash relieved for other uses, such as improvement in housing, hatching and brooding conditions and better stock. Positive economic adjustment.

As a blanket economical measure the matter of feed is most prominent in the minds of all producers of poultry and its products. Various war time rations have been prescribed, some lowering the cost of production per dozen of eggs to an unusual figure.

If—the eternal if—the cost per dozen can be lowered to 10 cents, or 50 per cent. less than the general average 15 cents, without reducing the egg yield proportionately, it is good business to adopt any ration that has been proved not to have vitally affected egg yields.

Ohio Experiment Station has compiled statistics from feeding Leghorns which are at least out of the ordinary, certainly in cost per dozen of eggs laid. They used for three years the following feed formula: Grain, shelled corn. Mash, ground corn, 16¼ pounds; meat scrap, 10 pounds. After January 28, ground corn, 8 pounds; meat scrap, 5 pounds.

Following are the results obtained: Mortality, 29.2 per cent.; grain and mash consumed per hen, 174½ pounds; cost of feed per hen, $2.27; eggs per hen, 351; cost of eggs per dozen, 7¾ cents; profit per hen, $4.18. Experiment began November 24, 1912 and ended October 6, 1915, 1047 days. Twenty-four Leghorn pullets were used.

It was assumed in these experiments that equal quantities of shelled corn and mash were necessary to the hens' requirements. Mortality was low for a three-year test; the average yearly production was low, 117 eggs, though the profit of $4.18, divided by three years, is equal to $1170 on 1000 birds per annum. Undoubtedly the birds employed were taken from an average flock without any reference to pedigrees of ancestry.

Opposed to the experiment in Ohio is the requirement of the modern poultry producer for large flocks that will average at least 140 eggs per bird. Since the wheat fed check pens employed by the Ohio Experimenters did not do quite so well as those fed on corn rations (7 cents less in total profit for three years) it is safe to state that much better layers could have been secured through the employment of pedigreed stock. Herein is an evidence of economic failure which the average American poultryman will be quick to take advantage of in the effort to raise his percentage of profit.

Aside from the enormity of the demand for all poultry products is the wisdom of readjustment in every branch of the industry. Radical changes in housing conditions are not necessary to increased production, hatchability, incubation or any other one thing, but better conditions than exist in general are necessary to all or any of these things.

Worth While Poultry Suggestions

How deeply and thoroughly have you studied your layers? Do you know that they retire for the night with sufficient food to make an egg for the next day's lay?

A full crop, when the hen is on the roost, is a "best ever" sign that the layer is prepared for her duty.

Spend a few moments in the hen house at night; weed out the poor feeders (if you are satisfied enough food has been offered them to fill their crops) and place them in a separate house, feed to the limit and then decide if they are profitable, by the number of eggs they do *not* lay.

Internal parasites are often responsible for high mortality, few eggs and much food waste—a teaspoonful of powdered pomegranate root bark, for every 50 birds, followed the next day by two tablespoons heaped full of Epsom salts, will greatly assist in relieving affected birds.

Take out the poorly feathered, the lame and halt, the thin and pale that disease shall not break the weak links in an otherwise strong chain.

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Fire-Blight

The weather conditions of the present summer have been favorable to the development of fire-blight, a bacterial disease of the apple, pear and quince. Its presence is indicated by the blighting of twigs, from tips downwards. The brownish, blighted leaves cling tenaciously. A blighted tree has the appearance of one scorched by fire. Blighting may affect the flowers, and sometimes the young setting fruits are rotted and destroyed. Large roughened areas known as blight canker, often appear on the larger limbs in which the bacteria live over winter.

Warm, close, moist weather favors the development of blight and the younger growth is more susceptible. The bacteria invade the inner tissues of the host, hence cannot be killed by spray applications. Fire-blight may be controlled by removing all infected parts carefully and promptly. Infected twigs and water sprouts should be cut at least six inches below any indication of bark discoloration and all cuts should at once be disinfected with corrosive sublimate (bichloride of mercury) diluted 1-1000 parts of water, or one tablet to one pint of water. All cankers should be cut out and the cuts disinfected with corrosive sublimate and painted with some form of tree paint, to protect the surface from infection by other organisms and facilitate the formation of callous growth.

Careful inspection should be made at least once a week from blooming time until the fruits are one-third to one-half grown, and any blighted parts, however small, removed at once. Since insects, especially aphis and red bugs, are concerned in spreading the disease, the control of such pests should greatly reduce the spread of fire-blight. The more concerted the fight in any community, the more quickly will control be possible.

The Pennsylvania State College and Experiment Station, State College, Pa., have issued a bulletin, No. 136, which contains additional information on fire-blight, and will be sent on request.

Changes in the Peach Industry

New Jersey is having a big crop of high quality peaches this year. The Horticultural Division of the Experiment Station has exerted itself in the interests of this industry and a remarkable development has taken place during the past ten years.

Prior to 1900, Morris and Hunterdon counties were the "peach counties" of New Jersey. Between then and 1905 the San Jose scale devastated these orchards and wiped away many thousands of acres of trees. About the same time it was found that the light soils of the southern part of the state produced good peaches. Today Cumberland, Gloucester and Burlington counties are the "peach counties." The system of packing has also gone through a change. The peach basket is used less and less and the Georgia carrier more each year. This development is in line with modern farm marketing. The carrier develops confidence among buyers. The basket always gave an opportunity for unscrupulous packers to "cheat." The Bureau of Markets has expert peach packers demonstrating standard methods of grading and it is estimated that half the crop this year will be packed according to a standard system.

Varieties of peaches as with other fruits and vegetables, have changed much within the past twenty-five years. Not many years ago the popular kinds began with the Mountain Rose followed by Champion, Old Mixon, Stump the World and Early Crawford and ended with Late Crawford and Stevens Rareripe. The modern commercial orchard today probably has Carman, Hiley, Belle of Georgia, Elberta, J. H. Hale and one or two others.

Selecting Apples for Fair Exhibit

In selecting apples for exhibit, pick specimens well colored for the variety, large for the variety, but neither punky nor monstrous in size, true to varietal form, and uniform in color, size and form.

All apples should be entirely free from insect and disease injuries or blemishes and bruises, and should possess their stems and waxy bloom.

In shipping, wrap each fruit with paper and pack carefully in a rigid receptacle properly addressed, and labeled "Perishable." Bruises occurring during shipping count against the fruit, but in a much less degree than the preventable injuries and blemishes.

Label all the varieties so that any one not acquainted with fruit can name and enter them correctly.—Richard Wellington, Minnesota University Farm.

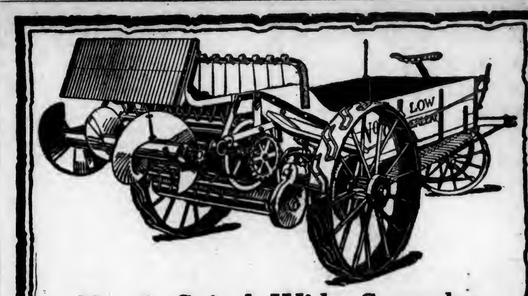
Successful Storage is Essential this Year

This concrete cellar, after being covered with soil, will be an ideal place for fruit and vegetables until needed later.

College Short Farm Courses

Farmers' winter courses in agriculture and home economics will be a special feature at The Pennsylvania State College next winter. These short courses cover a period of twelve weeks, including the annual Farmers' Week, which brings to the college for lectures and demonstrations, representatives from other institutions and men engaged in practical work. In outlining the courses this year, special emphasis is placed upon present economic conditions.

The courses are intended for men and women who cannot spend four, or even two, years in college, but who find it possible to devote the winter months to association and study with others engaged in practical agriculture, creamery work and home-making. A catalogue containing full information concerning fees, living costs, etc., is free upon request to W. W. Wood, State College, Pa.



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Latest in International Harvester Spreaders!

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The **New No. 8** Spiral Wide Spreader and other **Low Corn King** and **Low Cloverleaf** Spreaders will go onto thousands of farms before the close of the year. They are all light-draft, low-loading, easy-handling, built of steel—and satisfactory. We have an idea one of them would stand a good chance of going onto your farm if you were fully posted. At any rate it will pay you to write us for catalogues. Write the address below.

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It's a peculiar thing and hard to understand why some farmers continue to plant important crops on land not knowing if the soil contains sufficient lime or limestone to counteract the acidity of the soil to insure a profitable yield when for one-half cents worth of Muriatic Acid and five minutes of their time THE SIMPLEX SOIL-TESTER will answer this very important question and forever eliminate all GUESSWORK. The price of a complete SIMPLEX TESTING MACHINE delivered to you is very small, shipped all charges prepaid. FULLY GUARANTEED to be accurate and perfectly satisfactory or every cent of your money returned in 15 days. ORDER ONE TODAY and begin saving the money you are throwing away.

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The Threshing Problem Solved Threshes cowpeas and soy beans from the mown vine, wheat, oats, rye and barley. A perfect combination machine. Nothing like it. "The machine I have been looking for, for 20 years." W. P. Massey. "It will meet every demand." H. A. Morgan, Director Tenn. Exp. Station. *Booklet 101 free.* **Koger Pea & Bean Thresher Co. Morristown, Tenn.**

Storing Vegetables

OUR EXPERIENCE POOL

We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1227, SEPT. 15.—What use have you made of steel and concrete in your cow stable? How much have you spent for these two materials, and do you think it was a profitable investment. How many cows do you have? Did you remodel your old cow stable or build a new one?

TOPIC No. 1228, OCT. 1.—How have you solved the problem of disposing of the sewage from your bath, toilet and sink? How much did your system cost to install and what have been the results? Tell us in not more than 250 words what you know of this subject.

TOPIC No. 1229, OCT. 15.—What has been your experience this year in spraying the orchard and thinning the fruit? Have you or your neighbors tried the new "dusting" method? Do you own your own spraying outfit, hire the work done or combine with neighbors?

M. G. F., Dryden, N. Y.—We grow beets and turnips for hens and stock, storing them in our cellar, which is a large one. Cabbages are placed heads downward on sod ground in a sheltered spot and covered with a layer 12 inches thick of oat straw. Buckwheat straw may be used as a part covering but on top only, as it is too lumpy for even covering when used alone. Six to eight inches of straw will keep the cabbage safely if one is sure that plenty of snow will settle on the bed. Of course, the cabbage needs to be freshly trimmed when sold or used, but almost no trimming is given when the heads are turned down in late fall. We kept about 30 tons safely this way, marketing in January and February. I have learned that carrots for late winter or spring use taste best if left right where they grow in the garden, as one does parsnips. Frost does not hurt them, but instead renders carrots that in the fall are big and coarse as tender as young, early carrots are in summer. I place a few in a box of damp sand or soil for early winter use. Also late fall grown beets are tender kept this way for winter use. But the early beets get too tough and woody for such use.

Swiss chard pulled on its own roots can be stored in boxes of damp soil for winter use, also head lettuce, and will keep for some weeks, while celery so stored will keep half the winter. We plan to store as big a variety of such green vegetables and roots as possible in their best stages of growth, as we believe their use in abundance does much to keep the family in good health.

C. C., Jr., Penn Laird, Va.—I have made no less than three cellars during my life, all of which have been a failure except the last one, which, strange to say, was the cheapest of the three. My last cellar is nothing less than a dug-out 20 feet long and 10 feet wide, with a door at the south end. I dug down 5 feet and laid three sleepers 4 inches square lengthwise through the cellar. On top of these sleepers I laid a 2-inch floor. I screened the south end of the dead space under the floor to keep out snakes and rodent animals.

I ran a 6x6 piece of timber through the center of cellar for a roof support, placing it 7 feet above the floor, which gave me 2 feet of pitch in roof. I made roof of rough slabs, laying them flat side down and rough side up. After roof was completed I covered all with about 2 feet of dirt, ends and all, leaving only the door uncovered. A door fitted up and my cellar was completed excepting some shelves along the sides for canned fruit, etc. We have a large cellar under our dwelling house, costing many times what this little dug-out cost, but the little dug-out is so far ahead of the large cellar in keeping potatoes, apples, canned fruit, etc., that we ha it filled every year. We were never able to keep our sweet potatoes more than half the winter till we built this little dug-out. Now we usually have sweet potatoes till quite late in the spring.

E. O. J., Woodlawn, Md.—We raise an abundance of vegetables for home use and a few for market. Having no cellar under our dwelling I dug one under a two-story outbuilding and built bins in the back of it each of 100 bushels capacity, which we use for storing our potatoes. In our few days extreme winter weather I burn an oil heater for a few hours at a time, thus arresting any danger of freezing. Our beets, turnips and mangel wurzels are placed in pits, covered with a little straw and earth. They are dug from time to time as needed for home use or market. Cow pumpkins are kept in the feed room of the cow barn and covered with a little hay or straw. Carrots are put in boxes of sand and stored in the cellar. Parsnips are kept in the field and brought in as needed. A furrow is plowed for cabbage, the heads placed downward in it in a row and a furrow plowed each side of the first one.

S. R., Bessemer City, N. C.—Pumpkins, turnips, beets and sweet potatoes are good for man and beast and this is a good way to preserve each. "When the frost is on the pumpkin" bring loads of them to a cool, dark, dirt-floored barn and spread them out gently (not piled upon each other any more than you can help) upon the floor, and as nights get cold enough to freeze, place bags or straw under them and cover with bags or straw—any convenient way to protect from freezing. Treat sweet potatoes the same way, only you can pile them upon each other. Dig potatoes before the frost touches the vine, because, I have learned from experience, that the taint will run from vine down into the potato if allowed to stand until after frost. And a valuable lesson in sweet potato care I learned from an old colored woman: "Missus, as you digs 'em, an' from den on, handle 'em just lak you would aigs—don't nebber bruise 'em."

Before freezes place turnips in a kiln and put a shelter over the kiln; treat beets, salsify, parsnips and Irish potatoes the same way. If one has barn space—a dirt-floored barn—it is an excellent idea to kiln these in this barn, then when you gather for winter use, you can run less risk of cold entering the kiln and freezing these crops. After entering the kiln, always protect by carefully closing each time, placing a plank at entrance with dirt and straw.

P. H. T., Peace Dale, R. I.—Turnips and cabbage are my chief root crops, so perhaps my experience is broadest on them. I leave the turnips in the field as long as the weather indicates the ground will remain open; if stored early when the weather is warm they are apt to start growing and rot. As my cellar space is limited I have to utilize every inch. I find they keep best in bins about 6 feet wide and a foot between each bin. The bins are left open enough for a circulation of air and may reach to the ceiling. The foot alleyway permits a thorough circulation of air and dries up the sweat which collects on the turnips and causes them to rot.

I always have a few hundred bushels of carrots and parsnips which I store in the cellar. I find that the parsnips keep much firmer and come out in a more attractive appearance if covered with sand. I seldom have room for all my turnips in the cellar and never for the cabbage, which I store by the trench method. I dig about 4 feet deep and about 8 feet wide. I consider it best to dig it in the woods or some place where the heat and cold are equalized. I dig the trench as long as my crop requires. I dump in until level and then ridge it up. Then I put on leaves or straw about 6 inches thick after being matted down. Then I crown it over with about 10 inches of dirt, leaving an air hole about every 10 feet which allows a circulation of air and a place to get into when the ground is frozen.

S. M. T., Chester, Pa.—When one of the farms, which we now have, came into the family it was heavily covered with stones, and in order to get rid of these all the buildings were made of them, even the wood-sheds and tool buildings. Underneath the wagon house a large pit was dug, walled up with a tight stone wall and arched over in the same way. This pit is about 15 feet wide and 30 feet long, with a height of about 8 feet in the center and 6 feet at the sides. On the roof is about 3 or 4 feet of earth, so that the entire vault is absolutely underground and away from all danger of frost. In this vault we place whatever is desired to keep in the way of roots or vegetables to use during the winter. We have kept apples, celery, cabbage, potatoes, beets and flower bulbs until early spring. As potatoes are one of our main crops we store more of them than anything else. We put them in loose, as they are dug, and during the winter sort them over and haul to market as desired. This vault is also excellent for storing cow beets, as it keeps them from wilting or shrinking much while in storage.

Such a place for storage should be on every farm. The expense of building is a little high, but the returns are many times worth the few hundred dollars invested. In fact, a farmer could do most of the work himself at odd times, except the masonry, which has to be watertight. It is also very important to have the top arch well covered and graded, so that all water runs off in wet times, for if water gets into the wall it makes a great deal of trouble.

R. B. R., Ozark, Ill.—It would seem, to just think about the matter, that every farmer would know the value of, and practice the storing of root and vegetable crops for his family and stock of different kinds. Yet looking around it is surprising how few practice storing, and still fewer store them so they keep well. It is a simple practice and yet the simplicity is what they seem to fall down over.

For storing beets, pumpkins and large turnips for stock, I just lay off a long trench 3 to 5 feet wide, about 2 to 3 feet deep, on a slope that gives the lower end a fall at the rate of 2 or 3 feet to 100. I hardly ever make ricks that long, but they are just as successful as shorter. I bed 3 or 4 inches in these with leaves or other litter. Then in goes a mixture of pumpkins, beets and turnips, so that I can have a mixture of all when feeding every day. On top of this is 4 or 5 inches of litter again, something dry. Still on top goes a large rick of corn fodder to be fed out as the roots and pumpkins are fed. This fodder is tied down with wire to prevent blowing off, and put on sufficiently to drain water off, and then ditched around thoroughly. This is all fed back together A few of the stalks on top may be lost, but not many, and the mixture is very palatable to horses and cattle.

I store potatoes, cabbage, turnips, etc., for family use just the same except a frame is made to go over to hold up the fodder and it is not taken off as the produce is taken out, but I just go in under the fodder. Well packed down fodder makes an ideal covering, and the vegetables keep perfectly.

G. F. S., Georgetown, Del.—Having lived in several localities, our experience has been considerable. In the cold North we stored all vegetables in bins, or on the floor in the ordinary house cellar satisfactorily. (Pumpkins kept until about January.) Later, with a furnace, even separated by an 18-inch wall from the storage room, we had to dig another cellar, which, with gravel floor, was successful. We found a concrete floor undesirable. In Delaware a dug-out in a side-hill, with board roof covered with sod, was good; a house cellar with brick walls and dirt floor, kept potatoes, but roots shriveled.

We find the best plan to be as follows: For pumpkins and sweet potatoes a moderately warm, dry chamber; vegetables a cool cellar or cave; for temporary storage, as during expected inclement weather or midwinter, and outdoor heaps for protracted storage or keeping until spring.

At harvesting we make mounds, the bottoms about 6 inches below the surface, cover with 6 inches of straw or eaves and 4 inches of dirt; about December 1st add same amount of leaves and dirt. A wisp of straw in top gives ventilation; a board frame 15x24 inches, or larger, set in south side, stuffed with straw, makes a convenient door. During warm intervals in winter we remove portions and store in cellar, as required. Thus we have kept vegetables crisp until April, and seed potatoes until July.

The largest potato crop ever produced in this country was the promise of the July crop report. Leon M. Estabrook, Chief of the Bureau of Crop Estimates of the U. S. Dept. of Agri. states that the average production for the previous five years (1911-1915) was 363,000,000 bu., which represents a fair crop. This year the indications are that there will be a crop of 467,000,000 bu.

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Top of the Hopper on the Pennsylvania Grain Drill is only 43 inches from the ground. This makes it convenient to fill and allows the operator to see the ground in front of the machine.

Despite our low-down construction, both the Hopper and Ground Wheels are standard size. The advantage is the result of underslung frame, an arrangement which also keeps the Hopper in perfect balance.

Positive force grain, grass seed and fertilizer feeds are accurate to the last degree. Lifting lever, levers regulating quantities of grain and fertilizer and acre measure are within easy reach in the rear. Drills built in sizes 6 to 12 openers, both fertilizer and plain. Pin Hoe, Spring Hoe or Single Disc Openers with spring pressure attachment to hold at uniform depth.

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We said so in 1905, and now 60,000 satisfied customers throughout the United States and Canada say so again, that the GUARANTEE SPREADER stands without an equal for durability, simplicity and practicability in spreading lime in any form, GROUND LIMESTONE or commercial fertilizer, etc. If you are looking for a good, big, strong, durable lime and fertilizer spreader that contains all of the latest patented features and is sold under a five year GUARANTEE, write us TODAY. Our enormous output enables us to give you the best lime and fertilizer spreader that inventive genius can produce at an exceedingly low price. Guarantee Manufacturing Co., Dept. G64, Baltimore, Md.

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The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address
WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

SEPTEMBER 15.—Economical griddle cakes will be popular this year. How do you make good ones out of corn meal, rice, etc.? Don't confine yourself to what we can find in any cook book, but give us some ideas which will be helpful to other housewives. What do you find best to serve over them?

OCTOBER 1.—If you put up more preserves, jellies, canned and dried fruits and vegetables than you need for home consumption, how do you market them and what prices do you propose to charge this year? How do you pack them for shipment? We feel that many farm women have prepared to meet the town demands for preserved food supplies this winter and will welcome the experience of others as to methods of marketing and packing and prices to ask.

OCTOBER 15.—Eggs will be high this winter. What can we do now (Oct. 15) to help have a good supply? What and how do you intend to feed your hens this winter? Limit your manuscript to 250 words.

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

How We Make Coffee

Mrs. W. A. L., Media, Pa.—We think that the secret of our good coffee is exactness and the use of cold water. We never guess about how much coffee to use or water to add, but always carefully measure. We keep a dessert spoon in the coffee jar and take one heaping spoonful for each cup of coffee wanted and one extra for the pot. Then we add as many cups of cold water as we have used spoonfuls of coffee, and three or four egg shells, which we save in an empty jar for this purpose. Of course, the eggs are washed before being used, and the shells from boiled eggs are no good for settling. After adding the cold water we let the coffee stand a couple of minutes and then put on to boil briskly for five minutes, or ten minutes moderately. At the end of this time it is set back on the stove and allowed to settle naturally, or if we are in a hurry we add a half cup of cold water.

We are careful also to keep our agate coffee pot clean. Whenever it gets dark we fill it with cold water, add a teaspoonful of washing soda and boil briskly, then we empty it and fill it again with cold water only and boil the second time.

We pay only 20 cents for our coffee, but with the above methods and good rich cream have a hot drink superior to lots we have tasted which cost more.

Miss I. E. B., Franklinville, N. Y.—The coffee pot must always be clean and the bean freshly ground each time if one is to have good coffee. Our favorite way of making it is as follows: One tablespoonful of coffee to each person, one egg beaten with the coffee and a little cold water; let stand for a minute, add a little more cold water, put on the stove and bring to a boil, fill up with boiling water and boil for ten minutes, when it is ready to serve. We find the less expensive coffee often better flavored than the expensive varieties. We buy our coffee mostly of a mail order house where we buy other groceries and clothing.

Whip the cream until it is so thick it will not drop from a spoon, put a good teaspoonful of it into each cup, add the sugar and then the hot coffee, stirring as the coffee is poured in; will improve the flavor of any cup of coffee very much indeed. Setting the coffee pot, when it has boiled long enough, back where it will not boil but will settle for about ten minutes, so the coffee will be clear when poured, improves the flavor greatly.

Miss M. J., Bellefonte, Pa.—Our family are all very fond of a good cup of coffee, and this is my method of making it: I allow one tablespoonful of coffee for each person served and pour over it as much boiling water as I want cups of coffee, for I do not "fill" it, as our mothers used to say. I boil my coffee five minutes, unless it happens to be a brand that has a "raw" taste after that length of time when I sometimes find it necessary to boil it a little longer. Some varieties require longer boiling than others. After the coffee has boiled for the required length of time I set it where it will keep hot but not boil, until I am ready to serve. I clear my coffee with the white of an egg (when they are not too high priced). I put the white of the egg in the empty coffee pot, pour the amount of ground coffee I will need on it, and shake until the white of the egg is completely mixed with the ground coffee. Then pour the boiling water on it, and boil five minutes.

The secret in making good coffee is to use water that has just been freshly boiled, and not to boil the coffee too long, yet long enough to bring out the strength and flavor. A good variety of coffee is also necessary, and by this I do not mean the very highest priced coffee. I get good brands for 25 cents and 30 cents per pound.

Miss J. M. G., Buchanan, Va.—Making good coffee is not difficult, but there are certain essential rules to observe. The coffee pot should be washed, scalded and aired daily. I prefer a pot rather small at the top with a small spout. A wide opening allows the aroma to escape, so does hard boiling. The water should be fresh and boiling hard, but used as soon as it reaches that point, or it becomes flat in flavor. Grind coffee as needed, for it rapidly loses strength when ground. I use one heaping teaspoonful of coffee for the pot and two for each cup, and add a pinch of salt. Let the coffee boil up and immediately set where it will keep just below boiling point. Long steeping improves, but hard boiling spoils coffee. Some prefer to boil very slowly for five minutes. Clear by pouring some into a cup and returning to the pot a few minutes before serving.

Ready roasted coffee is improved by re-heating when the package is opened. I find the cost about the same, whether using high-priced or cheaper grades, since it requires more of the cheap coffee to make a good cup. In March I bought the best green coffee for 15 cents per pound.

Mrs. A. B. K., Rodman, N. Y.—My way of making coffee is very simple, but the coffee is always clear and I have had many praise it. We buy a 30-cent coffee, and we like the flavor better than the more expensive brands, although I have trouble in having any of them clear. We have the grocer grind it for us.

My coffee pot holds about 2 quarts and is of graniteware. When I want it full I fill the pot to within an inch or two of the top with cold water, then put in from one-half to two-thirds of a cupful of the ground coffee (if I make less I use about that proportion) and set on the front of the stove until it boils. Let it really boil a minute or two then set on the corner of stove away from the heat until ready to serve. If I want more than the potful I put in more of the dry coffee and put some boiling water in each cup as I serve the coffee. When I have enough of the steeped coffee for a meal I put in a half cupful of cold water and let boil a minute, the same as when making fresh coffee.

Mrs. W. R. W., Charleston, S. C.—If you want a delicious and healthful cup of coffee the secret lies in the following directions: See that the coffee pot is thoroughly clean and heated throughout. Always use freshly boiled water that has not lost its oxygen by previous boiling. Put in one-half cupful of ground coffee mixed with one egg and one-half cupful of cold water, then add six cupfuls of boiling water and boil three minutes, commencing to count after it begins to boil. The boiling coffee will draw to itself the coffee grounds, coagulate the egg and draw egg and coffee into a ball. Then to clear the coffee, put in one-half cupful of cold water. Pour out one cupful of the liquid to clear the nozzle and return to the pot. This receipt makes about six cupfuls of coffee. You can make coffee without an egg if you like. The yolk gives it a better flavor and the white is used for clearing. The only thing about egg shell that helps to clear coffee is the membrane on the inside of the shell. Use a silver fork in mixing egg and coffee, never an iron or steel one.

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What Our Farm Women Ask and Answer

Mrs. M. M., Pennsylvania, would like to ask our women readers, "What use have you found for chicken fat?"

In reply to Mrs. L. H. H., New York, who asked, some time ago, how to make crackers, Mrs. L. E. E. Pennsylvania, tells us her way to make graham crackers: "1 pint each of graham and white flour, ½ cupful sugar, 2 heaping teaspoonfuls baking powder, 1 teaspoonful salt; mix thoroughly, add sour cream (sweetened with a pinch of soda), or sweet cream to make a stiff dough; roll thin, bake in a moderate oven until light brown."

Mrs. S. P. H., New Jersey, writes us: "We are troubled with rats in both the house and barn. Won't some of your readers tell us the best way to get rid of them?"

If Mrs. A. V. B., New York, will use the following receipt for a layer cake and will not make the batter too stiff or have her oven too hot, Mrs. E. K. S., Pennsylvania, thinks it will be very satisfactory: Beat yolks of 3 eggs, add 1½ cupfuls sugar, 1 cupful milk, ½ cupful sour cream and 2½ cupfuls flour sifted with ½ teaspoonful soda and 1½ teaspoonfuls baking powder; add more sifted flour if necessary to make a batter that will just flatten out when run from a spoon. Flavor with vanilla.

We have a letter from L. W. T., Pennsylvania, saying: "I have been much interested in reading and testing the different receipts published in The Practical Farmer. I should very much like to know how to make rusk with and without egg, and White Mountain cake." Who will send us these tested receipts for the benefit of all?"

The arrival of school days brings up the problem of satisfactory lunches for the children. A number of mothers have asked us what to put in the boxes. How do you provide for the school lunch?

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8417.—Boys' Russian suit. Cut in sizes 2, 4 and 6 years. The blouse closes at the right side of the front and the pattern provides for straight trousers.

8426.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. Long or short sleeves may be used.

8427.—Ladies' house dress. Cut in sizes 36 to 44 inches bust measure. The dress has a three-piece skirt.

8409.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt has two pieces and a slightly raised waist line.

8410.—Children's dress. Cut in sizes 2, 4, 6 and 8 years. The dress is in one piece.

8404.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in two gores.

8411.—Ladies' dress. Cut in sizes 36 to 44 inches bust measure. The dress has a two-gored, gathered skirt.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

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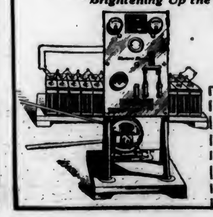

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The Romantic Career of the Practical Miss Dale

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CHAPTER XXI.

DE PROFUNDIS.

In the unabashed pursuit of pleasure into which Persis had plunged, Joel was a half-hearted participant. His life-long habit of standing scornfully aloof while his fellow beings strove to enjoy themselves, proved no match for Celia's artless appeals. "Please come, Uncle Joel," she would coax. "It's lots more fun with you along." And to the open amusement of his neighbors and his sister's ill-concealed wonder, Joel submitted to long automobile rides, to briefer excursions on the river and lake and to eating picnic luncheons with his back against a tree and on his face an expression conveying his unshaken conviction that there were ants in his sandwich. It is unlikely that Joel's presence on these occasions added in any marked degree to the general hilarity, but Celia's satisfaction was unmistakable. She always sat beside him with an air of proprietorship, digging her sharp little elbow into the sparse cushioning of his lean thighs or when weary, dropping her frowsy head against his shoulder with an engaging certainty that it was there for that very purpose. Like many another who has defied capture till after middle life, Joel atoned for past immunity by the thoroughness of his surrender.

But on this particular August morning, when an all-day expedition had been planned to Huckleberry Mountain, Joel revolted. Whether he had really been surfeited with picnics, or only feared that he might grow to enjoy such puerile forms of entertainment, and so lose some of the austere dignity which had hitherto distinguished him, it is certain that he came down to breakfast with his mind made up. Even to Celia's coaxing he was adamant.

"You mustn't tease Uncle Joel any more," Persis finally admonished the child. "You don't want him to go if he wouldn't have a good time." And to her brother she added, "You'd better go to the hotel for your dinner, Joel."

"Oh, I can pick up something that'll do me for a dinner," Joel replied with his old keen relish for playing the martyr. And then Celia, dropping her oatmeal spoon, lurched forward in her chair and imprinted a milky kiss upon his coat sleeve.

"I'll get Uncle Joel's dinner," Celia murmured. "I'll take care of him."

"But you're going on the picnic."

"No, Aunt Persis." Celia resumed an upright position with a suddenness that endangered her half-emptied bowl of porridge. "I don't like picnics 'thout Uncle Joel. I'd rather stay with him."

Joel groped for the toast. The plate was directly in front of him, but he could not see it for a blinding rush of tears. Never in his life had he known such sweet elation, never such humility. There is an irresistible flattery in the preference of a child. Except for the love of his dead mother and for his sister's affection, the lattter a curious blending of duty and traditional sentiment which would have kept on working automatically whatever he might have done, Joel had never inspired a single unselfish attachment until Celia came into his life. The thing was overwhelming. His hand shook till his fork clattered against his plate. What was he to have won the heart of a child?

In the two hours that elapsed before their departure, he suffered agonies of apprehension that Celia would change her mind. Scraps of cynical comment on the fickleness of her sex, some of them dating back to Virgil and Juvenal, flitted through his memory and stung like gad-flies. After winning such honor, after Celia had elected to remain with him, he felt himself unable to endure the ignominy of having her reconsider. While Mary made the beds, and Persis packed the luncheon in the kitchen, and the children raced about getting in one another's way, and prolonging the preparations they were desirous of hastening, Joel waited in a cold sweat, half realizing the absurdity of his misgiving, but quite at its mercy. He knew that if Celia changed her mind at the last minute and departed with the others, life would not be worth living.

But the elf-like little creature showed no signs of vacillation. After rendering valuable assistance in getting the others ready, including the feat of breaking a fruit jar containing the lemon juice and sugar, she came and stood at Joel's side, serenely contemplative and content. Even toward Celia Joel had never been demonstrative. But as the picnic party took possession of the machine, and half a dozen hands waved a farewell, he slipped his arm about the child's shoulders and drew her to him. The day was edged with gold. The warm August sunshine seemed to reach the very depths of his heart. He had a confused impression that he had done life an injustice.

"Tell me a story, Uncle Joel," commanded Celia, nestling closer. "Tell me about Miranda and Ariel and that horrid old Caliban." For to reduce Shakespeare to the juvenile comprehension had been one of the tasks imposed on Joel by his new fealty, nor did it seem to him, as once it might have done, a base perversion of the matchless creations of the English tongue that in diluted and modified form, they should interest and entertain a little maid of six.

The morning was a long rapture for the two strange comrades. Joel told stories till Celia tired of a passive role and entertained him with some of those flights of fancy compared with which the most audacious attempts of the adult imagination seem tame and groveling. Then they took a walk, hand in hand, after which Celia discovered that she was hungry and a raid was made upon the pantry. Perhaps nothing so conclusively proved the completeness of Joel's subordination as the overthrow of his dietetic theories. The first course of their meal was bread and molasses and it wound up with honey and ginger snaps.

By this time the sun had taken full possession of the front piazza, and Joel pulled his chair around to the shady north side of the house and sat there in after-dinner tranquility while Celia played about on the lawn. Joel's eyes followed every movement of the quaint little figure. He remembered with wonder that other people thought Betty the prettier of the two girls. To him that small piquant face with the unruly hair, the straight black brows and the wonderful kindling eyes, embodied all that was beautiful. His selfish middle-aged heart ached under the strain of accommodating this wealth of sweet swelling tenderness.

Celia had wandered across the grass toward the clump of maples which once had shaded the big barn erected in Joel's youth and never rebuilt after the fire. She turned to kiss her hand, and he kissed his back, the first time in a matter of some five and thirty years that his dignity had so unbent. The realization that the act would prove highly diverting to his neighbors caused him to glance anxiously toward the road. But the white ribbon of dust was undisturbed by vehicles, and his mind relieved, he looked again for Celia.

A full half minute he stared incredulously, looking this way and that, wavering between startled apprehension and a conviction of his own folly. For Celia was nowhere to be seen. The grass over which her little feet had twinkled as he turned his head, rippled in the wind and gave no sign. The child had not had time to reach the trees, behind whose trunks her slight form might easily be concealed. And then as Joel told himself that he was a fool, a faint wailing cry brought him to his feet.

He was running before he had time to formulate his fear. And then a startling memory spurred him to more desperate haste. He recalled the old well by the barn, boarded over years before and later so concealed by the encroachment of grass and weeds that its very existence had been forgotten. But time had taken its toll even from the stubborn oak, and at last it had yielded under a child's light weight. Joel knew it as he ran, but the sight of the splintered irregular opening, across which the clover heads nodded serenely to one another, gave a poignant anguish to his realization. He tore the rotting planks aside, and looked, as it seemed, down into unrelieved blackness. Then his sun-dazzled vision adjusted itself to the gloom and he saw the dank, slime-covered stones that formed the sides of the well, and below the black gleam of water and something pink and white, that struggled and went under and showed again.

"Celia, Celia!" Joel shouted. "Don't be scared. Uncle Joel's coming."

He had been a coward all his life. In his boyhood he had shrunk away from risks which to Persis were exhilarating and delightful. The ill health of twenty years had tended to confirm and increase that native weakness. Yet at this supreme moment no thought of his own danger crossed his mind. The saving of Celia was all.

He kicked off his slippers and gripping the curb for support, lowered himself into the pit. A rush of cold air like a breath from an open grave enveloped him. Finding foothold in the crevices of the green, damp stones, digging his fingers into slimy crannies, panting, slipping, bruising his flesh without feeling the hurt, this frail hypochondriac went to the aid of the child who somehow had blundered into his heart.

The water in the well reached Joel's arm-pits as he stood on its bottom and lifted Celia to his shoulder. She clung to him for a little with a suffocating grip, strangling, sobbing, panic-stricken. And as he strove to soothe her, for the first time fear laid its cold hand upon him. He looked up to the circle of blue sky so terrifyingly distant and it seemed incredible that he could ever have made that precipitous descent. Unencumbered he had accomplished the miracle, but he knew he could never climb back to the warm peace of the upper air with Celia in his arms.

The child's sobs were quieting. She was perched upon his shoulder, her arm wound tightly about his neck. Even at the moment when all the tragic possibilities of the event crowded on his mind, he felt the tremor of her rigid little body and thought anxiously that Celia was in danger of taking cold.

With an effort he took a grip upon realities. Gently he loosened the pressure of the child's encircling arms.

"Celia, honey, don't hold Uncle Joel so tight. He's got to get breath enough to holler, so somebody will come and take us out of this."

He had shouted till he was hoarse before he realized his folly. There were no neighbors near enough to hear his cries. The sensible thing was to husband his strength till some vehicle passed and then call lustily. Again he addressed the child.

"Celia, dearie, keep your ears open. When we hear wheels coming, we'll holler for all we're worth."

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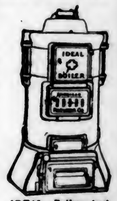

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and the ratttle of some farmer's wagon rumbling homeward from the village. Then together they screamed for help. But the hoofs went on beating their tattoo till the sound grew faint, and the rattle of the wagon died in the distance. Again and again the sound which told of human nearness woke in their hearts only to die in the ensuing silence.

"Uncle Joel," Celia wailed, "I'm co-old." Her sobs echoed uncannily as if the well were filled with ghosts of weeping children. Again he gazed at the disk of blue sky overhead. He seemed to himself to be viewing it from some indeterminate half-way house between life and death And yet of the two, the invisible world seemed nearer than the earth roofed over by that placid sky.

As time passed his suffering became acute. The weight of the child on his shoulder was an increasing torture. The cramped arm raised to hold her secure was racked by intolerable pain. The chill of the water was paralyzing. His heart labored. His breath came with difficulty. Celia seemed to be relapsing into an unnatural drowsiness. Her body sagged lifelessly. He found it necessary to stand close to the side of the well, that the wet stones might help to support her weight.

There was only once he prayed, unless his struggles be counted as one long prayer. But when his appeal found words, it was less a petition than a suggestion. "She's so little, Lord, for it to end here, and she's had a hard time so far. The fun's just beginning." It showed no lack of wisdom, perhaps, that his prayer ended there.

His mind must have wandered a little later. It seemed as if his mother were beside him, encouraging him as she had done long before in his boyhood when he had wrestled with a difficult task. And then he was out in the woods with a crowd of his boyhood companions and the wild geese were flying south. Honk! Honk! Honk! "Guess that's why it's so cold," Joel said, addressing the shadowy assembly. "Winter's coming."

The sound of his own voice brought him back to reality. What he had heard was the horn of Persis' car. She had returned. And the love of life woke in him and gave him strength to scream lustily again and again.

As the children scrambled out upon the grass, all talking at once, Persis lifted an authoritative hand. "Hush! I thought I heard some one call."

"I don't hear nothing, Miss Dale," said Mary tranquilly. Persis again enjoined silence As her gaze swept uneasily over the peaceful, familiar scene, her eyes were arrested by one of the rotting boards which had formed the cover of the unused well. Joel, wrenching it from its place, had flung it out into the clover. It had not been there that morning, Persis knew.

She ran toward it with a conviction of calamity which only took concrete form when she heard her brother's call issuing from the depths of the earth.

"The well," she cried with self-accusing anguish. "The old well." But when she stood by its edge and sent her voice ringing down into its depth, it was steady and strong.

"I'm going for help, Joel. 'Twon't be much of any time now. Just a little longer."

Mary and the children had never seen the Persis who came running toward them. They shrank back from her stern presence, half afraid.

"Mary, take the children into the house and keep them there. Call up the doctor and tell him to get here as quick as he can. And have that coil of new rope that's in the shed ready for me by the time I'm back."

She had leaped into the machine while she was giving her orders. It described a dizzy circle in the grass, shot down the driveway, and sped screaming along the dusty road. Before the trembling Mary had had more than time to discharge her commissions the car was back with half a dozen strong men, harvesters from the farm just below, crowded into the seats. And when Doctor Ballard turned his sweating horse up the drive half an hour later, Joel and Celia were between hot blankets, and stimulants had already stirred their sluggish blood.

It was eight o'clock before the doctor left. I've got to see the Packard boy, or I wouldn't go. I'll come back and stay the night through."

Persis nodded. "I'd feel easier to have you in the house. There won't be no need for you to lose your sleep. The spare room's all made up."

Some twenty minutes later Joel roused and spoke. His respiration was hurried and articulation difficult.

"Persis—Celia?"

She understood the syncopated sentence.

"Celia's doing fine, the doctor thinks. She's got a little temperature, but a child's likely to have fever for any little thing."

He waited for some time before putting the next question, rallying his strength for the ordeal of speech.

"Don't s'pose—'twould do for me—to see her?"

Persis looked at him with a curious tightening of the lips, in her eyes an unaccustomed blending of tenderness and pride.

"You shall see her, if you want to, Joel. 'Tain't going to hurt her—to speak of."

From the room across the hall she brought Celia, a chrysalid child, sleeping heavily, closely wrapped in an old plaid shawl, and laid her on Joel's bed. Celia's thatch of black hair fell untidily across the pillow. The fever gave her olive skin an unwonted color. Joel made an ineffectual effort to lift his arm. Then as he desisted, sighing, his sister gently lifted his hand till it touched the hot fingers of the sleeping child.

"They-re— such little— things— Persis." His labored breath made speech fragmentary. "It's funny, how—they fill up—all the room—in a man's heart."

"Yes, I know, Joel. But I guess maybe you'd better not talk."

"Makes me think of—what the Good Book says, Persis. 'A little child—' "

He did not finish the quotation. After Persis was sure that he was asleep, she carried Celia back to her bed and renewed her watch. The doctor came in about ten o'clock and stood for a little with his fingers on his patient's pulse.

"You'd better not lose your sleep, Doctor," Persis suggested, glancing at the weary young face. "You go into the spare room and I'll call you if I need you."

"I'm not tired," the doctor answered. "I'd as soon sit here for a while." But he did not meet her eye.

It was an hour later when the struggling breath lengthened into a sigh, deep-drawn and profound, irresistibly suggestive of untold relief. The doctor was at the bedside instantly, but after a moment he laid the limp hand gently down and turned away.

Persis sank upon her knees, putting her hands over her face down which the tears were streaming, those strange, illogical tears which are life's tribute to death, however it may come. Yet even while she wept, phrases of thanksgiving sang melodiously through her brain and echoed in her heart. For to this brother of hers it had been given to redeem a life of weakness and failure by a single heroic sacrifice to die a man.

(*Continued next issue.*)

"I will help you begin again,"

says the sturdy American patriot to the war-ruined French farmers.

The picture tells the story as no words can do—the sturdy American farmer encouraging his war-racked brother of France to renewed effort for home, family and life itself.

The farmers of France need your help. They have lost everything. When the German army retreated, they devastated the entire countryside. No living thing remained—no trees, no crops, no animals, no birds. Wells were poisoned, buildings ruined, families scattered, men murdered, women worse than killed, children crippled.

To these innocent victims of a nation's lust, the new Overseas Acre Fund will supply food, clothing, farming implements, fertilizer, seeds, live stock, building materials. Every gift will be marked—"Given with gratitude and goodwill from the Farmers of America to the Farmers of France.

This Fund was started by farmers for farmers. It offers the one way to give of your bountiful crops, to feed the homeless, starving farmers of our brave ally. It distributes what you give without waste, without charge, without expense—for every cent spent to run the Fund will be met by outside contributions. What *you* give *goes to sufferers*; the Fund raises the money to *get it there!*

Without your help our French neighbors starve; *with your help* they can begin again to feed themselves, to rebuild their homes, to reunite their families.

Therefore, fill up the free-will blank below, and send it *at once* to the publisher of this paper, one of the Advisory Committee operating the Overseas Acre Fund. Each state, each county, each community will have its own organization for making sure that gifts are handled without bother or red tape, but your pledge *now* will be a *great encouragement* to the sufferers abroad.

Our boys on land and sea are offering their lives in the great cause of liberty. Can WE do less than share our abundant crops to help renew the magnificent, undying spirit of an immortal race? Can YOU do less than give the product of ONE acre of your land?

GUARANTEE

The Overseas Acre Fund is endorsed by this paper and other leading farm papers of America. It cooperates with the War Relief Office of the American Red Cross. It pays its own expenses; what you give is thus 100% efficient.

Return This Pledge Form at Once to The Practical Farmer

THE PRACTICAL FARMER

OVERSEAS ACRE CONTRIBUTION

As an American farmer, who gratefully recognizes the magnificent sacrifices of the farmers of France, and desiring to share our abundant crops for the alleviation of suffering and to help in the great work of reconstruction, I hereby subscribe my name to the Overseas Acre Fund and will make an order on the purchaser of my crop of ..... requesting that he draw a separate check to the order of the Overseas Acre Fund for the value of an acre of the average yield, as I calculate it in bushels, This, in turn, I will forward to National Headquarters of the Fund, 719 Market Street, Philadelphia.

Name .....

P. O. ..... R.F.D. .....

County ..... State .....

The Practical Farmer Live Stock and Dairy Section

Giving the Fall Calves a Good Start

JOHN UNDERWOOD

Most of us have to live some time before we can appreciate the worth of "a good start." When we were boys we were not as careful about the way in which we began an important piece of work as we learned to be later in life. We have all heard that "a thing well begun is half done," but I fear that few of us learn even in later life to rightly value the initial steps in any undertaking. It is probable that the interest in dairying was never so great as at the present time. There are few people now who milk cows who are not anxious to improve their herds. They realize that no matter how well their cows are paying them there is opportunity for improvement. The hope of every good dairyman is in the calves for which he is breeding to the best sires obtainable and for which more than one who reads this is looking anxiously at the present time. We may choose good cows for the mothers of our future herd, we may breed them to great sires, but if the young calves are not properly fed and cared for our success will be limited, to say the least. Every cow is a product of inheritance and environment. The better she is bred the more may we reasonably spend of time and labor to make her surroundings what they ought to be from the day she is born until the end of her life. The calf from a "scrub bull" might claim extra care upon the ground that therein lay the only chance of proving its right to live in this progressive age, but surely the up-to-date breeder will have much stronger reasons for giving to his calves the best of care and the ration that will best develop them into profitable animals later on.

A large number of the cows in dairy sections are smaller than they should be. The feeder of young animals for beef readily realizes the value of rapid growth, but the man who is growing calves for future use in the dairy is far too apt to think that, "Any cow will give milk," and underestimate the greater value of a large and robust specimen of the particular breed he has chosen. Of course, we do not expect the dairy calf to grow into the type of a beef animal, we do not expect the Jersey or Guernsey calf to ever resemble either in size or form the animals of larger breeds designed for beef purposes, but we should strive for large and healthy animals of the breed we happen to be keeping. I am perfectly sure that many dairymen are annually losing a great deal of money because of their cows being under size. Not that these small cows may not be paying a profit but the profit is smaller than it would have been if they had been so fed and cared for when they were calves as to have grown them into fine, large specimens of their breed. I have grown some of these small cows myself and so come in for a share of the advice I am giving in this number of The Practical Farmer.

My practice is to let the calf stay with the cow and do its own milking until it is three days old, then I take it away from her and feed it 2 pounds of whole milk each day until it is six weeks old. Nature's food for the young calf is whole milk and there is nothing like it. It is not necessary, though, that it should be very rich in fat. The Holstein calf will grow as fast and keep just as healthy upon very thin milk as upon that which is much richer, but nature demands some fat for the calf and there is none so good as that secreted in the milk. I know a great many people don't feed their calves whole milk for more than half as long a time as I do, as they want to sell the cream, but I know that feeding whole milk for six weeks pays me well. I don't hesitate putting some extra expense into the ration of a well bred calf. In changing from whole to skim milk I do so gradually. I decrease the former and increase the latter a little at each feeding till the calf is receiving no whole milk at all. There is often a tendency to feed too much milk after it has passed through the separator. We are apt to reason that it is cheap and so give the calves more than they can well take care of. Ten to twelve pounds is usually sufficient for a calf six or seven weeks old, and double that amount will do nicely for a 3-months-old calf. There is a great difference, however, in the amount of milk that can be safely fed, depending upon the individuality of the calf.

I give all grain feed in a dry form. The less solid feed fed in the milk the less trouble will there be with digestive disorders. I get the calves to eating nicely cured clover or alfalfa hay just as soon as possible. I give them all they will eat of it, none to waste, however, but all they will eat. I have used prepared calf feeds and they are very good, but they cost more than home grown feeds. There are several kinds of grain that can be fed to a calf with good results. Wheat middlings are all right, corn meal is good, ground wheat will give excellent satisfaction, and ground oats are also good. The calf may also

(Concluded on page 310)

Southdown ram, McEwen 32—registry No. 34902

Pennsylvania State College recently purchased this yearling ram from the famous McEwen flock in Canada. Mr. Peter McKenzie, the college shepherd, is holding him.

Sheep Our Food and Clothing Producers

In a statement sent out by the Federal Departments of Agriculture and Food Administration, Secretary Houston and Mr. Hoover say: "It is essential for the future welfare of our nation that the supply of all meat animals be increased. This, not only from the standpoint of directly increasing the food supply of the country, but more live stock on the farm means more fertility in the farm; more fertility means larger grain crops produced at a less cost per bushel; more cheaply produced grain should mean cheaper bread to the consumer, as well as more net profit to the farmer. Especially should the energies of the farmer be directed to increasing the sheep stock of the country. Clothing comes next to food as a necessity. Not only does the sheep meet the demand from a food and fertility standpoint, but for its wool for clothing there is no substitute. Every interest that can make itself felt should advocate and encourage the establishing of flocks of sheep in proportion to size of farms in every section of our country."

THE VALUE OF A GOOD RAM.

A scrub ram is expensive at any time, but doubly so at the present high price of wool and lambs. A good ram has many times proved to be more than "half the flock." Many successful and progressive sheep breeders trace their start on the road to success to the purchase of a good ram. Sometimes the price of the ram has looked high, but time proved it to be the cheapest and by far the best paying investment ever made.

At the Missouri College of Agriculture a good mutton ram, such as any farmer could purchase at $30 to $40 this season, bred to Western (Colorado) ewes, sired lambs that averaged two and a half pounds more at three months of age, when they were marketed, than lambs, out of the same class of ewes, which were sired by an inferior or scrub ram. Furthermore, lambs sired by the superior ram sold for 60 per cent. more per 100 pounds than by the inferior ram.

SHEEP AT COUNTY FAIRS.

Sheep are usually neglected at most local fairs They make one of the most attractive features of live stock exhibits where exhibitors and fair managers cooperate. A few of the points which will help make a good exhibit are mentioned by Howard Hackedorn, of the Missouri College of Agriculture.

1. Keep fleeces as clean as possible. All dung tags should be washed out or trimmed off.

2. All foreign material, such as straw and burrs, should be picked out of the fleece.

3. The fleeces of the medium wool breeds of sheep should be thoroughly carded out and the stringy ends of wool trimmed so as to present a smooth and attractive fleece.

4. The feet should be kept trimmed so the animal can stand naturally. Long "sled runner" toes are unnatural and frequently develop foot trouble.

5. Sheep that are to be exhibited should be taught to stand by frequent and patient handling at home for a few weeks so that when the judge undertakes to examine them they will not be continually twisting and pulling away.

6. Sheep should be kept as fat as is practical. Sheep will not fatten much during the hot summer months, hence those that are to be exhibited should not be allowed to get thin in flesh.

FEDERAL REVENUE TAX ON DOGS.

In order to increase the sheep population of the United States it is a fundamental necessity that there should be a control and elimination of the depredations of dogs upon the flocks. It has been found impossible to obtain general action by the state legislatures. Some time ago Mr. A. C. Bigelow, president of the Philadelphia Wool and Textile Association, took occasion to urge upon the Finance Committee of the United States Senate that there should be incorporated in the pending federal revenue bill a federal tax of $1 per head on all dogs in the United States, and this proposition was very widely supported from many sources. Unfortunately, however, the Finance Committee of the Senate failed to act upon this matter.

Mr. Bigelow is again urging this proposition for consideration on the floor of the United States Senate, and it is possible to have an amendment offered, incorporating this provision in the bill which is now under consideration. He urges those interested to write to the Senators from their state, and to all possible sources of influence in Washington, urging that there be incorporated such a provision in the revenue bill now under consideration.

LATE PASTURE FOR SHEEP.

After the grain crops have been harvested the sheep flock may be allowed to graze the land. The sheep will clean up the fence rows, weeds and waste forage that was not collected in harvesting. The longer the sheep are kept on pasture or grazed on harvested fields, the better.

They are thereby utilizing feeds that would otherwise be wasted. Grazing keeps the sheep in better physical condition, also. In most sections of Pennsylvania sheep may be grazed without extra feed until December 1st, if given shelter at night. Extension Circular No. 49, of the Pennsylvania State College school of agriculture and experiment station, contains many valuable suggestions along this and other lines for the guidance of those interested in sheep raising.

GOOD SHEEP FOR SOMEBODY.

In connection with their "More Sheep, More Wool" movement the Philadelphia Wool and Textile Association on August 27th brought into Pennsylvania 300 head of grade ewes, part of a large flock, which have been on pasture in New York State to recover from their long trip from the Western ranges. The sheep are on Mr. Wayne's farm at Paoli, Pa., and can be inspected by any one who wants to buy sheep at cost price.

Feeding the Dairy Herd

The dairy department of the New Jersey Agricultural Experiment Station advises that cotton seed meal is at present considerably the cheapest dairy feed on the market. It has long been the cheapest source of protein, but now with corn and its by-products selling around $80 a ton and cotton seed meal around $50, cotton seed meal is also the cheapest carbohydrate, or energy feed. This holds true with cotton seed meal at $50 a ton just so long as corn or hominy is selling for more than $45 a ton.

Cotton seed meal, however, has a bad reputation as a dairy feed when fed to excess. This arises quite largely from the fact that cotton seed meal and cotton seed hulls are lacking in mineral constituents. In the South where animals are fed exclusively on cotton seed hulls and meal, a condition of malnutrition arises on account of a lack of the essential mineral elements. Alfalfa hay and corn silage have a comparatively high mineral composition and a large amount of cotton seed can be fed with them.

With alfalfa or clover hay as much as 5 pounds of cotton seed meal has been fed each day to good producers without any evil effects. A firm, hard butter results where much cotton seed meal is fed. Feed more cotton seed meal and cheapen your ration.

Hogging Down Corn

Practical feeders and experiment stations have shown that hogs when properly managed will gain as rapidly and as economically when allowed to harvest the corn crop as when the crop is harvested and fed in the usual manner. As a matter of fact, even more pork may be produced from an acre when the hogs do their own harvesting. This statement is proved by tests conducted by various experiment stations. Henry and Morrison in "Feeds and Feeding," show that 68 pigs which were allowed to harvest their own corn, gained 1.4 pounds daily during 53 days, and required 488 pounds of concentrates for 100 pounds gain. Another lot of 31 pigs which were fed ear corn in a yard, gained 1.1 pounds during 57 days and required 546 pounds of concentrates for 100 pounds gain.

L. A. Weaver, of the University of Missouri College of Agriculture, points out that summer pasture combined with hogging down corn in the fall is a profitable method of fattening hogs, since less high priced grain is necessary when pork is produced in this manner. The Missouri Station has shown that 20 to 40 per cent. less grain is required to produce a given amount of pork when good pasture crops are supplied throughout the grazing season. To effect such a saving, however, it is necessary to limit the amount of grain which is fed to hogs on pasture so that at the end of the grazing season they will not be fat, but will be grown, and in excellent condition to hog down the corn.

This system of hog management not only reduces the amount of grain required to finish the hog for market, but saves labor, removes less fertility from the farm, keeps the swine herd more healthy, and offers other advantages for cheapening the cost of production.

The number of acres of corn necessary to finish a given number of hogs will vary with the kind of hogs and yield of the crop. It has been estimated that 20 pigs weighing 125 pounds will harvest a yield of 40 to 70 bushels per acre in from 15 to 26 days respectively; 40 pigs in 8 to 14 days; 60 pigs in 5 to 9 days, and 80 pigs in 4 to 7 days.

Most feeders prefer well-grown, thin shoats which weigh from 125 to 150 pounds—shoats that have been grown through the summer on forage and have not been previously fed a heavy grain ration. Such hogs will eat a large amount of feed and will gain rapidly. Heavier hogs, such as brood sows and fattening hogs almost finished, are apt to break down too much corn and not clean it up so well as they go, thereby increasing the waste.

Some nitrogenous supplement must be supplied to make the hogs gain rapidly and economically. At least part of this supplement may be supplied in the form of roughage, such as alfalfa, clover pasture, or soy beans. If provision has not been made for clover, alfalfa or rape pasture in a field adjoining corn, or if soy beans have not been planted in the corn or in an adjacent field, then it is absolutely essential, with feeds at the present prices, to supply some nitrogenous supplement, such as tankage, linseed oil meal or middlings. The particular supplement used would depend upon the relative prices of this class of feeding stuffs. Ordinarily tankage is a cheap supplement.

Giving the Fall Calves a Good Start

(Continued from page 299)

be fed whole grains, oats or corn, and will make good growth on these. I would never feed cotton seed meal to a calf, but aside from that I would feed calves almost any sound grain that they like. A little ground flaxseed with the other feed is good. Blood meal in very small quantities is sometimes of use and prepared calf feeds will give good results.

It is, of course, very important that the feeding receptacles be kept perfectly clean at all times. Regularity in feeding is a necessity. The calves will do better fed at regular periods than if fed irregularly. A little salt kept within reach of the calf will be of essential aid. The calf's quarters should be kept clean and dry and a plentiful supply of good bedding provided, bright straw being excellent for this purpose. As exercise is an important feature in the proper growth of the calf the youngster should have a lot or paddock in which to move about as much as it pleases. The drinking water for the calf should be of the purest and cleanest obtainable, and in the winter when the water becomes very cold it should be warmed enough to take the chill off. The person who feeds and cares for the calf must be ever on the watch. He must study his business. He must use his head all the time in his work. He must watch the animals he is feeding and learn to know what he sees while watching.

One of the most common troubles in calf raising is the disease known as scours. This is nothing more or less than indigestion. Every attack of the malady pulls the calf down and hinders its growth and development. The type of scours most prevalent among dairy calves is the one known as common scours. Another and more serious type is white scours, which is an infectious disease and often fatal. White scours is caused by germ infection of the little calf through the naval cord, due, usually, to being dropped in an insanitary stall with unclean surroundings or where there has previously been an infection of the same nature so the germs are present. There are a number of causes which are very apt to produce common scours. Improper feeding, insanitary stalls, unclean bedding, sour feeding pails, boxes or utensils used in handling the milk or other feed, lack of sunlight and pure air, feeding milk that is beginning to turn or is sour, and variation in the temperature of the milk, are all causes that are very apt to produce common scours. At first the milk should be fed at a temperature of from 95 to 100 degrees F., this being about the same temperature it is when it comes from the cow. After the calf is on skim milk the temperature need not be quite so high, but it should be the same for each feeding. I find it best to run the milk from the separator into a large milk can then pour out in separate pails for the calves. In this way feeding foam caused by separation is largely avoided.

If a case of scours develops I immediately cut down half of the ration for a time. I have tried several remedies recommended for scours, but the best treatment I have ever employed is to reduce the ration one-half and give the calf one ounce of olive oil and a fresh egg beaten in the milk once a day. I also give the calf a little charcoal in its feed twice daily. By treating the calf in this way it is but a short time until it is in good condition again. I am enabled to say, from considerable experience in raising calves, that the sort of feeding and management here mentioned will insure normal development, which means larger and better animals later on. If we want to get the most out of our progressive methods in breeding we must take good care of the calves after we get them. We can never look for the best results from the progeny of the most prepotent sire unless we give his daughters a chance to develop in the best sense of the word.

Illinois.

It is often only a little thing which turns the decision of a live stock judge when a class is closely contested. Scraping and polishing the horns gives an added touch which might bring you the blue ribbon.

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30 Days' Free Trial Raise its own cost and more by what it saves in cream. Postal brings Free catalog, folder and "Direct-from-factory" offer. Buy from the manufacturer and save money.
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Pigs any age, bred gilts for fall farrow. Free circular. Also registered Guernsey bulls from $35 up.
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DOGS.

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News from the Breed Associations

CATTLE.

The American Shorthorn Breeders' Association is said to have the most liberal policy of encouragement for its members by prize money at fairs and expositions of any breed association in the world. Eastern fairs this year are making a special effort to increase interest in beef cattle and in the final roundup at the Eastern States Exposition at Springfield, Mass., in October, $3000 is offered for the Shorthorn classes.

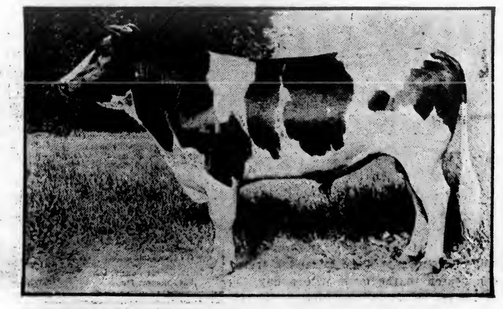
From The American Guernsey Cattle Club we learn that Follyland Nancy 52457, a 2-year-old Guernsey heifer, bred and owned by I. C. Bandy, of Greenwich, N. Y., recently completed an official year's record of 12,270.9 pounds of milk and 712.6 pounds of butter fat, her average test being 5.81 per cent. This makes her rank third in butter-fat production among 2-year-old Guernseys. Three weeks after finishing her record she dropped a fine heifer calf, which is now growing well. Her dam, Langwater Nancy 27943, has three official records and is now making her fourth. During the first six months of this, her fourth, record, she has to her credit 556 pounds of butter-fat—three pounds more than the world's champion, Murne Cowan 19597, produced during the same period.

The extension service of the Ayrshire Breeders' Association informs us that Dalmusternock Missie 4th, an 8-year-old imported Ayrshire cow, owned by Barclay Farms, Rosemont, Pa., has just completed a yearly record of 16,671 pounds milk, 591.91 pounds butter-fat. Missie 4th already had to her credit two yearly records of 14,212 pounds milk, 509.01 pounds butter-fat and 18,540 pounds milk and 685.71 pounds butter-fat, respectively. The completion of her new record gives her a three-year cumulative record of 49,423 pounds milk, 1786.63 pounds butter-fat, an average for three years of 16,474 pounds milk, 562.21 pounds fat.

The Holstein-Friesian Association at its annual meeting appropriated $15,000 to be awarded as prize money for milk and butter-fat productions, one-third of the money appropriated to be awarded for milk production, and left the details as to method of award to the board of directors. That board, after due consideration of the difficulties to be met with in awarding prize money under a double system, has directed the superintendent of advanced registry to first award the prize money for butter-fat production, and then to award the prize money for milk production only to cows appearing in the butter-fat prize lists; awarding the prizes in the due order of such milk production. Thus, unless a cow or heifer appears in the list of prize winners for butter-fat production, no matter how much milk she may produce she will not appear among the prize winners for milk production.

The Red Polled Cattle Club of America, Gotham, Wisconsin, is mailing free to all who are interested in this dual-purpose breed, its new 62-page booklet, "Facts and Figures," giving information in regard to Red Polled Cattle.

The Brown Swiss Cattle Breeders' Association tells us that up until June 1st they had the official records of 76 mature cows in their register of production. These cows averaged for the year 11,972 pounds of milk and 469.32 pounds of butter-fat. Thirty-one cows in the 5-year-old class averaged 12,607 pounds of milk and 505.02 pounds of butter-fat, while 32 cows in the 2-year-old class averaged 8356 pounds of milk and 339.23 pounds of butter-fat.



King of the Pontiacs 39037 (202 A. R. O. daughters; 115 proven sons).

At 13½ years of age he recently sold for $10,500 at Liverpool, N. Y. "King" has 19 daughters that have made from 30 to 44 lbs. of butter each in 7 days, and 113 other daughters with records of between 20 and 30 lbs. in 7 days.

SWINE.

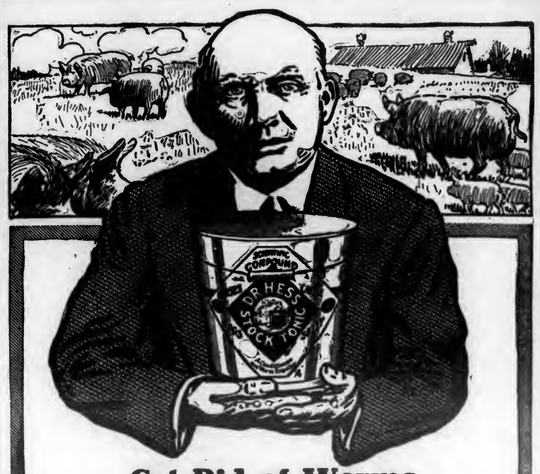
The National Duroc-Jersey Record Association has recently issued volume 52 containing the pedigree of registered Duroc-Jersey sows numbered from 508,700 to 529,998 and boars numbered from 201,501 to 210,999. This organization is now said to be the largest swine record association in the world, having at the present time more than 6600 members and is steadily growing.

Berkshire Breeders are looking forward with interest to the Eastern American Berkshire Congress to be held at Springfield, Mass., Oct. 12-20. Cash prizes totaling $1100, besides various trophies, have been provided and as many good Berkshire herds are in the East full classes are expected.

The premium list for the 1917 International Live Stock Exposition to be held in Chicago, December 1st to 8th, is now ready for distribution and can be had by addressing B. H. Heide, Union Stock Yards, Chicago.

Oleo in Pennsylvania

All records for oleomargarine licenses in Pennsylvania have been broken during the past six months. The Dairy and Food Bureau of the Pennsylvania Department of Agriculture which has been active in prosecuting cases where oleomargarine is sold as butter, has not only been protecting the farmer, but also the consumer. During the entire year of 1916 there were 3,348 licenses issued to sell oleomargarine and for restaurants and hotels to use the same.



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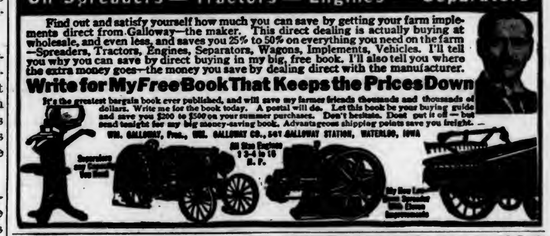

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The Practical Farmer

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Organization Puts New Life in Dairying

By F. P. WILLITS
Pres. Interstate Milk Producers' Association

UPON several occasions in years gone by efforts have been made in various places to organize dairymen so that they could take advantage of the benefits to be had by working together. As a rule, however, these attempts were unsuccessful, because it seemed that there were always some suspicious or short-sighted members to weaken the chain enough to break when the critical test came. Other industries, in fact, even other branches of the dairy industry, had all this time been organizing and growing stronger, so that not only did the milk producers have to bow to their wishes in almost everything they bought, but they were compelled to wait until the notice was posted on the milk-house door to even know what they were to receive for their product. Individual opposition to a system of this kind generally brought forth the query, "Well, if you don't like what we offer to pay you, why don't you quit?" Why more dairymen didn't quit can only be explained by the fact that it is about the only business which can be run at a loss for a considerable time without having the sheriff tack up his notice of another failure. By working long hours, having a family to help free of charge and boarding himself the dairyman has managed to keep things going in a way city people never could have done with their short hours and labor charge for everybody. With the heavy demand on all sides for labor the time has now come when the dairyman must have more money to hold the labor which he has had so long free of charge. So long as the milk checks overbalanced the feed bills the seriousness of the situation was not forcibly brought home, but when the feed bills became larger than the milk checks something had to happen. Under these conditions the organized efforts in Chicago, New York State and other milk producing districts were highly successful in freeing producers of the strangulation hold which the dealers had had on them for many years. The actual monetary value which these celebrated and at times bitter contests had for the milk producers of these districts is as nothing compared to the moral effect which the results had upon the dairymen throughout the country. The success of these movements has undoubtedly fanned the flame of many smaller local organizations and was in no small way responsible for the success of the Interstate Milk Producers' Association and the increased prices which we have obtained for milk going to the Philadelphia market.

The general dissatisfaction of the producers in the Philadelphia territory was given a great deal of publicity a little less than a year ago at the meetings of the Governors' Tri-State Milk Commission when representatives from Pennsylvania, Maryland and Delaware sat and took testimony of all the conditions as they existed. After this event things moved rapidly until March 14th, this year, when the Inter-State Milk Producers' Association was incorporated under the laws of Delaware as a corporation of the first-class, for the purpose of acting as agent for its stockholders in marketing their milk and other dairy products.

In the few months since then our association has increased to nearly 6000 members, who represent 70,000 cows, which produce a large enough proportion of the milk entering the Philadelphia market to be a vital factor in the matter of price adjustment. We are steadily increasing our membership and hope eventually to include all milk producers in the Philadelphia territory, not only those who ship whole milk, but creamery and condensery patrons also.

On July 1st we announced to our members that the price of milk shipped direct was to be 7 cents a quart f. o. b. Philadelphia. This was on the basis of milk with 4 per cent. of butter fat, and adjustments were to be made at 3½ cents per one-tenth point for each 100 pounds above or below that figure. This means 3 per cent. milk brings 6.2 cents a quart, or $2.87 per 100 pounds, and 5 per cent. milk commands 7.7 cents per quart, or $3.57 per 100 pounds. Producers who take their milk to a receiving station receive one-half cent a quart and the freight rate to Philadelphia less than the 7 cents a quart. For instance, dairymen in the 23-cent freight zone receive $2.76 per 100 pounds of milk testing 4 per cent. butter fat, with adjustments as the test is higher or lower. Three per cent. milk brings them $2.41, while 5 per cent. milk brings at the station $3.11 per 100 pounds. All of these prices are holding good for September.

We did not encounter the organized opposition from the dealers which the League had in New York, so that in no instance was the city milk supply affected when the new price went into effect. The general public had been well informed of the justice of our price increase, and when the dealers raised their retail price to 11 cents comparatively little opposition was met with.

We have had some difficulty in adjusting the matter of selling the milk according to butter-fat tests, as the greater proportion of it had previously been sold at a flat price per quart. This was manifestly unfair to the man who endeavors to keep up the quality of his milk, and as producers become better acquainted with the new system they see its advantages. It was necessary to establish this new method of handling milk, as it is becoming the universal practice.

The running expenses of our association are met by a charge of 1 cent per 100 pounds of milk sold and a proportionate charge for cream. Surplus profits, if any, will be distributed among the stockholders. The management is vested in a board of fifteen directors to be elected by the stockholders in person or by proxy at their annual meeting in the Bourse Building, Philadelphia, at 10 A. M. on the first Monday in December. The present board is made up of those selected by the various county divisions during the last few months to represent them in the provisional committee until

(Continued on page 327)

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(Continued on page 327)

INTENTIONAL SECOND EXPOSURE

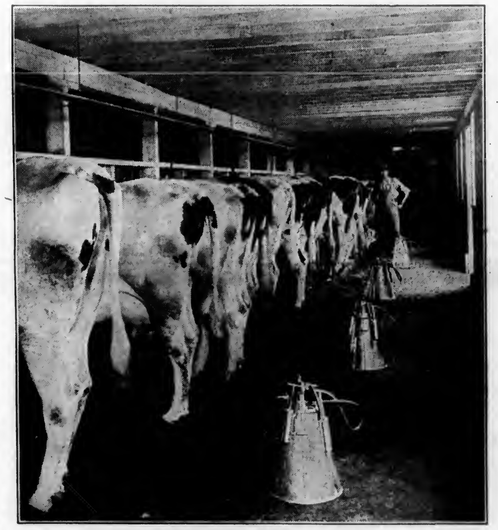
Alfalfa and Farm Management

A. E. CRANTHAM

IT has been a number of years since alfalfa became an established crop in the Western States. During the past ten years it has been found that alfalfa can be grown successfully on most every type of soil in the Eastern States. These facts are of significance to every farmer, no matter what type of farming he may be engaged in. When he fully realizes the part that alfalfa will play in the economical management of the farm it will be but a short time when alfalfa will be found on every farm. The reasons for such a prediction as this are many. In the first place, the two things for which the Eastern farmer has spent considerable money each year are protein feeding stuffs and nitrogenous fertilizers. Even if he does not buy concentrated nitrogenous feed, the live stock of the farm does not receive the kind of a ration it should in order to develop properly. All growing animals and milk producing animals require large amounts of protein in order to develop, or produce satisfactorily. Just now feeding stuffs are very high in price, especially that class known as carbohydrates. Often it is not fully realized by the stock grower that much grain can be saved in feeding by substituting for some of the corn, materials carrying a high percentage of protein. For example, young hogs may be grown to a weight of 75 or 100 pounds with comparatively little grain if they have access to a field of alfalfa. It has been demonstrated time and again by the various experimental stations that a grain ration alone, especially corn, is not economical in developing young pigs. The fact that alfalfa can be substituted for a large portion of the bran and other protein dairy feeds now being used on the farms should lend particular interest to the growing of this crop. Alfalfa then can be used for hay for almost any class of live stock, and for pasture, with a special advantage to hogs.

Alfalfa is both what may be called an intensive and extensive crop. Intensive in the sense that considerable care must be exercised in preparing the soil and sowing the seed. The plant is quite delicate when young and requires more than ordinary care in the matter of soil preparation and culture. However, when once established, alfalfa is one of the most vigorous and hardy plants now grown on the farm.

Since the introduction of alfalfa in a small way over the country many false ideas have arisen regarding its culture. Many have the notion that alfalfa will, when once established, maintain a stand for a number of years. Our experience indicates that this cannot be hoped for on lands that are naturally deficient in lime and have been depleted in fertility. On the other hand, this very fact is of value, as it enables a rotation of alfalfa with other crops. This is an advantage that was not considered in the early days in the West when alfalfa was first introduced. Their soils were fertile, well supplied with lime, and the use of fertilizers unheard of. These favorable soil conditions made it possible for alfalfa to be carried for a long period of years without reseeding. Some careful work has been done by the Delaware Experiment Station in determining the value of alfalfa in a rotation. In other words, to determine what effect the growing of alfalfa will have upon the soil as shown by the yields of wheat and corn which may follow. Several years ago a rotation consisting of two years alfalfa, one year of corn and one of wheat was established at the Delaware Station. The method of procedure was as follows: The alfalfa was seeded on well prepared land during the latter part of August. The soil was limed at the rate of one ton per acre and 600 pounds of a fertilizer carrying about 10 per cent. phosphoric acid and 5 per cent. potash was made at the time of seeding. The alfalfa was cut two years. At the beginning of the third year the sod was turned under for corn and planted without the use of any commercial fertilizer. In the fall the corn was removed and the land seeded to wheat. An application of 200 pounds of acid phosphate per acre was applied at the time of seeding. The following year when the wheat was removed the stubble was turned under and the soil fitted for alfalfa again. The results in yield of crops indicate that alfalfa has a wonderful capacity for storing nitrogen, and improving the soil by sending down tap-like roots into the more or less impervious subsoil. The average yield of corn under these conditions for three years has been 95 bushels per acre. This is the weight of corn at husking time late in the fall. The yield of wheat has varied more from year to year, but the average yields have been a little less than 30 bushels per acre. The alfalfa has yielded an average of four tons of well cured hay per acre during this period. The yield of corn is excellent when it is considered that no fertilizer had been applied direct. The corn on the alfalfa sod has invariably been of good color, even though persistent droughts have occurred. In fact, better corn has been secured from these plats than where 700 pounds of commercial fertilizer was used per acre with another rotation in which alfalfa was not included. This shows that alfalfa has a value other than for feeding stuffs. It appears that it will be possible to greatly increase our yield of corn at a minimum expense for fertilizer by rotating with alfalfa. The above rotation, it will be noted, covers a period of four years. During that time only 800 pounds of fertilizer have been used at the average of 200 pounds of fertilizer per year. This is much less fertilizer than is used on the average farm in this section.



In These Days of Labor Scarcity, Mechanical Aids are a Big Factor. The Milking Machine is Certainly Helping on Many Farms, Big and Little

Alfalfa does not lend itself to the best advantage for crop rotation on a large scale, for the reason that a large acreage of alfalfa cannot be handled in a single year. Since alfalfa must be cut three or four times a season 10 acres in alfalfa represents as much work as 30 or 40 acres of timothy, which is cut only once during the year. In order to get the best results from alfalfa in a matter of rotation it will be necessary on most farms to conduct two systems of crop rotation. The one with alfalfa might include potatoes and silage corn. Thus 10 acres in alfalfa would mean that each year 5 acres would be plowed under for silage corn and the silage corn followed the next season by early potatoes. The early potatoes would then be removed in time to seed alfalfa again. This would lessen the labor of preparing the soil. Thus, there would be 20 acres in the rotation—10 acres in alfalfa, 5 in silage corn and 5 in potatoes. The acreage in the rotation might be enlarged according to the ability to handle it. Silage corn is suggested in that corn after alfalfa makes a good growth, and more silage could be produced from ground in this manner than on any similar tract of land.

Other rotations may be suggested, but one should keep in mind that alfalfa should be grown near the barns, so that the distance for hauling would be the minimum. For the same reason, potatoes should be grown near the buildings. The rest of the farm may be rotated in the usual way—namely, corn, wheat and clover one year each, or other combinations. This would make two rotations on the farm, but they need not conflict, and such an arrangement is necessary if the best results are to be secured from the use of alfalfa. Seeding a new crop each year is perfectly feasible if early potatoes are grown, since that crop may be followed by alfalfa without plowing the land.

In some instances alfalfa is left down for several years until it practically runs out. It will be noted that under such conditions natural grasses tend to follow the alfalfa. This is one way of getting a piece of land seeded down to natural grass. If the soil is adapted to the growing of blue grass it will be found that after three or four years that the blue grass is beginning to crowd out the alfalfa. On other types of soil the small white clover will take the place not occupied by the alfalfa plants. After the alfalfa has been cut two or three years it may be pastured lightly and in that way gradually come into a permanent pasture consisting of blue grass and white clover. If one contemplates the establishment of a permanent blue grass pasture it would perhaps be well to sow some blue grass seed the second or third fall after the alfalfa has been sown. The seed may be put on after the alfalfa has been cut in the late fall.

In some quarters it has been recommended to sow alfalfa and timothy together. Since the life history of the two plants are entirely different, one or the other will necessarily be sacrificed in cutting either at the proper time. If equal parts of alfalfa and timothy are seeded and develop together the alfalfa portion of the crop will be ready to cut by the first of June. At this time timothy is far from maturity and cutting will generally destroy the timothy plants. On the other hand, if the mixture is allowed to stand until the timothy is ready to harvest the alfalfa will be overripe and cutting would result in the checking of the growth and perhaps loss of most of the plants. In order to keep alfalfa thrifty it must be cut regularly and at the proper time. Too late or too early cutting will result in a yellowing condition of the plant. The leaf spot which is associated with the yellowing of the leaves and a stunted growth is often the result of too early cutting or too late cutting. Hence it is not worth while to seed the two crops together. The writer saw a field of 5 acres which had been seeded to alfalfa and timothy in August, and the following July the field had a perfect stand of alfalfa, scarcely any timothy remaining. The alfalfa had been cut in early June and the timothy was practically driven out. A mixture of alfalfa seed with Red clover and timothy in the general rotation is a good idea in order to gradually introduce inoculation of the fields of the whole farm. However, the results secured in this manner are not often very satisfactory, since the land has not been limed enough to grow alfalfa and the grower often fails to inoculate the alfalfa seed. Hence, under such conditions the inoculation is not very efficiently introduced.

The reason for introducing alfalfa into a definite system of crop rotation is that the farmer is assured of a steady supply of alfalfa hay. Men often hesitate to plow under a fair crop of alfalfa, thinking that it will be difficult to secure a new stand. The difficulties of seeding and care involved are not any greater than that required in growing a crop of potatoes or tomatoes. If the alfalfa field is allowed to stand and not rotated there comes a time when the crop begins to fail, and no field is ready to take its place. Then there is a shortage of alfalfa hay.

In the future we may look for a more systematized effort on the part of farmers in growing alfalfa, since there is no plant that can be produced in this section that will grow as much high-class feed on an acre as alfalfa. The thing that must be learned is that in order to get the best results economically from the use of alfalfa is to provide a rotation so that a steady supply of feed is furnished and so that the beneficial effects of the land may be shared with other crops in the rotation.

Present high prices of feed and fertilizers are proving to many the advantages of a generous supply of this valuable legume and will win more converts to a system which makes the farm produce the feed needed.

The Practical Farmer
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F. V. L. TURNER J. H. REED
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SEPTEMBER 15, 1917

The Wheat Price Settled

THE price of wheat has been fixed. It is not as high as some of our friends would like to have it, but undoubtedly is a fair price, taking the country over. Wheat recently sold considerably higher than $2.20, but how much of it was real sales direct from the farmer? It would, without doubt, have sold just as high, if not higher, within this crop year, but the question is what would have been the price when the great bulk of the wheat must necessarily leave the farm? The great tendency would have been for it to go as low as possible to move it out of the producer's hands. Once out of his grasp millions upon millions of dollars would be made by manipulating a commodity which every one needs and for which nobody should exact a toll except those who grow it and those who give it the necessary handlings until it reaches the consumer. Under the present plan this great body of men, who have been allowed to grow rich by buying and selling without doing any service to the community will have to, for the next year at least, find other means of earning a livelihood.

On another page we are printing in full the report of the wheat price committee as it appeared in the Official Bulletin, the daily newspaper issued at Washington by the committee on public information.

Again, Success Through Co-operation

IN an editorial published in our issue of November 1, 1916, at the time of the Philadelphia Milk Conference and following the success of the Dairymen's League in obtaining a better price for milk in the New York territory, we said:

"In view of the success which has almost universally attended organized co-operation among farmers, why is it that only great emergencies like that which has arisen in the milk situation can bring our farmers together to secure recognition and a just compensation for their products? Surely co-operation and organized effort would have secured a price for milk that would have given a reasonable profit long ago, if it had been employed. Why wait each time until losses have made us desperate before we get together to secure the respect of the consuming world and a proper price for our products?"

The fact that the Inter-State Milk Producers' Association has recently been successful in obtaining an increased price for milk produced in the Philadelphia territory leads us to again ponder the question, why is it farm people as a class will not co-operate until they are forced to it? All those who have given thought to the subject know that it is impossible for a community acting as individuals to obtain the same prices which it is possible to obtain through co-operative action. When an organization has accomplished what the individual could not it would seem only natural that all the individuals interested would join and help the good work along. Such, however, does not seem to be the case with the dairymen. President F. P. Willits, of the Inter-State Association, whose story of success appears on another page, tells us that while practically every dairyman is receiving from 40 to 50 cents more for each can of milk he sells since the association has been working, some cannot yet see the justice of contributing one cent for each one hundred pounds sold to provide the organization with funds to carry on its work.

"What has been done can be done again," ought to prove a good slogan for any embryo co-operative association and have an added weight after reading the way the dairymen have succeeded in getting better returns for their labor. Paraphrasing the financial genius who said at the end of our Civil War, "The way to resume specie payment is to resume," the only way to co-operate is to co-operate. Two can start.

Now, All Together—Everybody Sing!

THE wholesome influences and good results growing out of the old-time country singing schools are being developed in the cities under the plan of "community singing." The idea has been growing in Philadelphia until more than six thousand people have gathered on the City Hall Plaza for an evening to join in singing the old songs which live. "America," "My Old Kentucky Home," "Old Black Joe," "Old Folks at Home," "Annie Laurie," and "How Can I Bear to Leave Thee," are a few of those in which every one could join, no matter how poor his voice. As he sings he unconsciously becomes a part of that powerful force known as a nation, and is welded to those alongside of him. He is illustrating the great truth in the phrase, "Let me write the songs of a nation and I care not who makes its laws."

The plan is not to develop individual singers, but to stir up patriotism and bring home to the great masses that only through unison of voice, heart and action can we as a nation accomplish anything.

New York State, through an extension service from Cornell University, for a while past has been developing the country singing school idea with favorable results. An efficient instructor has been provided who travels from place to place developing the work and caring for it after once started. During the annual Farmers' Week at Cornell about 100 members of the various schools throughout the state are brought to Ithaca, receive advanced instruction and on one evening give an entertainment illustrating their proficiency.

Whether in city or country these are times we must meet and act together. If singing offers the medium for such results, let us sing. Great singers tell us that we are not known as a singing nation, but we are given credit for having the best voices in the world. There is said to be something in the Yankee twang which the voice culturist can develop.

The Demand for Live Stock

ALL indications point to a strong demand for live stock during the next few years to supply the world with meat. Home conditions are too well known to even the casual observer to need more than passing notice. High meat and feed prices have driven thousands of breeding and immature animals to slaughter and as winter is setting in the great temptation will be to market stock which under normal conditions would be held for better fitting.

Conditions in Europe were recently described by Food Adminstrator Hoover in his address in Chicago before the editors and publishers of 126 farm papers and journals, who came from 24 states and were said to represent a combined circulation of more than 12,000,000. According to Mr. Hoover, there are several factors working to deplete the live stock of Europe, such as the demand for more meat, shortage in fodder production and the necessity of confining shipping to the most concentrated foods.

Figures recently announced by the French Government show that in the three years ending Jan. 1, 1917, the number of cattle decreased in that country 16.6 per cent., the number of sheep diminished 33 per cent., while the hog population lost 38 per cent. One reason for this heavy decline is found in the fact that the present consumption of meat is estimated by the French Government as being 69.61 pounds of beef, 11.16 pounds of mutton and 21.48 pounds of pork per annum per person. This is more than one hundred pounds of meat for each person, whereas, under normal conditions the consumption of dressed meat in France is said to be only eighty pounds per capita.

To America, then, not only France, but all of Europe is looking for a meat supply and it is our duty in the crisis to see that the want is supplied. With our abundance of grains and roughage, live stock, especially the pure-bred kind which utilizes its feed to the best advantage, offers unusual attractions this year.

Let's Stop This Leak

THE days for boring auger holes in stable floors so as to quickly dispose of the liquid manure have certainly passed. Scientists tell us that one-half the value of the nitrogen and two-thirds the value of the potash in stable manure are in the urine, and with present prices of these two fertilizing elements and the high value of the crops they will produce, all efforts should be made to recover their full value. Assistant Secretary Vrooman, of the U. S. Department of Agriculture, has recently characterized our annual farm manure loss as being "the world's greatest economic leak." How we can partly overcome a large portion of this loss is told by several contributors to Our Experience Pool in this issue on page 321. Having concrete gutters and enough absorbents to take up all the liquids, and then hauling the manure to the field daily is, of course, the ideal way to handle it, and is done by lots of successful men. Where this is not possible, storing the manure in a water-tight pit where it is properly treated to prevent heating, but not allowed to leach away, offers the next best practice. The time will soon be here when stock will have to be kept in the stable for the winter, and it is none too early to make plans for saving a valuable farm by-product, especially in view of the fact that next year's crops promise to pay well for extra care and attention.

$25 Per Day—Can You Earn More?

IF you would like to earn from twenty-five to fifty dollars a day, it cannot be done easier at this time of the year than by going into your corn field and selecting seed for next year's crop. By practicing this method of seed corn selection it is possible to increase your acre yield the following year five bushels over your average, so it can be readily seen, with corn at its present price, time could not be better spent. The great advantage in this practice is that the grower is able to get seed that he knows has matured in his normal growing season. As the principle of like begets like holds good in corn breeding, it is possible, under a selection of this kind, to breed for a certain ideal type. If it is desired, for instance, to raise or lower the height at which the ear grows on the stalk, it can be done by selecting seed ears at the height desired. True, all the resulting year's crop may not be at just that height, but if continued again the desired object can be attained.

Taking the picked corn to a place where it can dry before freezing weather, gives it a vitality next spring which is never found in seed that has been in the field through a couple of early snowstorms. A great variety of satisfactory drying racks are on the market today, and good ones can be made at home if necessary. It is well to select at least fifty ears for each acre to be planted next spring. Abnormally large ears should not be selected to the neglect of medium sized ones which have matured and are covered with uniform kernels from tip to butt.

Bulletin Helps for Farmers

In view of the fact that New York ranks first and Pennsylvania second in the production of apples for the last seven years many of our readers will be interested in Extension Circular No. 80, "Harvesting, Packing and Marketing the Apple Crop," of the Pennsylvania State College. This is a 43-page treatise of this timely subject and the text is well illustrated with photographs and diagrams. A copy may be had by addressing the College at State College, Pa.

"The Improvement of the Poor and Run-down Soils of New Jersey," is fully discussed in an extension bulletin, No. 11, of the New Jersey Agricultural College. The methods advocated can be practiced on almost any poor soil, so that a copy of the bulletin, which consists of 31 pages and will be sent free by sending a request to New Brunswick, N. J., will prove valuable to any one who wants to improve his farm or is considering the purchase of a new one.

Suggestions for Marketing Potatoes

C. M. ARTHUR

An official of one of the largest farmers' exchanges in the East states that one of the greatest difficulties connected with marketing potatoes is to get the growers to grade properly. This official feels that well graded potatoes put up in the proper package and marked with a brand name or trade mark should revolutionize the market for those who cared to undertake such a proposition.

The experience of growers, exchanges and commission men seems to make emphasis upon proper grading essential. Too many growers seem to think that everything should go regardless of size or condition. Scabby, second growth, ill-shapen potatoes should not be sent to market. Undersized tubers should not be sent to the first-class trade, but should be reserved for trade in seconds or for home consumption. Mixing potatoes of different sizes or varieties results only in loss in the end. The market price of mixed stock will be based in most cases on the cheaper grade. One Western exchange has a system of numbering each sack of potatoes shipped by it so that improper grading may be traced back to the original grower and he be made to stand the loss thus incurred. Poor grading involves paying freight on goods for which no money is received.

Standardization is necessary before potatoes can be marketed at the best profit. In the New York City market there are certain commission men whose prices are not governed to any extent by market conditions. They handle one type of stock and cater to the wealthier trade and to hotels of the higher class. Price makes little difference with such firms, provided they can get select goods. For such trade careful grading, packing and marking will pay dividends.

Probably few growers realize the losses due to rough handling of potatoes, which causes cutting, bruising and finally decay. One has only to observe some of the potatoes to be found in almost any retail store to appreciate the reason why the retailer must sell the goods at a considerable advance in order to cover the loss he sustains from partly spoiled or otherwise unsalable potatoes.

Where marketing of potatoes can be done through an exchange or co-operative organization this method seems to give pretty general satisfaction and in the long run growers feel that the exchange can secure as good prices as it is possible to secure. This method of distributing potatoes has worked out to very good advantage in some sections of New Jersey, notably Monmouth county. Most of the potatoes marketed by the Monmouth County Exchange are brought in by the growers in wagons in bulk and are barreled or sacked at the shipping station. Some growers, however, pack their crop in baskets, sacks or barrels before bringing them to the point of shipment. In any case, however, the potatoes are re-sacked or barreled at the shipping point by the exchange agents in order to send out as uniform a product as possible. Such practice enables the exchange to get better prices.

Growers should study their markets. Long potatoes should not be sent to a market desiring round stock. Some markets are acquiring a taste for red varieties of potatoes. Just as certain markets desire a yellow butter and others a white butter, so various markets differ as to their desires in potatoes. The ordinary market desires a smooth, medium-sized round white potato.

Pennsylvania.

Controlling the Peach Borer

The peach tree borer annually destroys thousands of trees and is one of the most serious pests that many growers have to contend with. "Many remedies for the prevention of the borer injury have been advanced in the past," says Sheldon W. Funk, farm advisor of the Pennsylvania Department of Agriculture, "but so far none have proved satisfactory and the only sure plan is to open up the tree and cut out the worms. Many growers hunt the borers in the spring and fall, but my practice has been to hunt only in the fall of the year and I have never lost but one small tree from the attacks of this insect. Now is a very good time to hunt borers in this state. In this latitude the females lay eggs from about June to September, so that by careful search at this time you are able to get most of the worms, and the weather is more pleasant than later in the fall.

"Our practice is to keep the trees banked with from 6 to 8 inches of earth during the entire year. This is very important, as it causes the borers to work higher in the trunk of the tree and prevents them from getting into the roots where they are hard to get. Some time during September we remove the mounds of earth from around the trees with a hoe and then with a sharp knife clean off the gum and cut out all of the borers that we can find. Be careful to make the cuts as near perpendicular as possible so that not so much of the bark is mutilated. Some men use a wire but I prefer a knife so that I can not only cut out the worms but also cut out and clean out all of the borer channels in order that the wounds may heal more rapidly. The very small worms can be killed at this time by scraping the bark rather firmly with the knife. After we have hunted the borers from the trees we let them open for about two weeks when we go over them again. The worms that were missed the first time can easily be found on the second hunting because of the fresh excrement which they send out. When these borers have been removed the trees are again banked and left untouched until the next September. It is a good idea to paint the trunks with concentrated lime-sulphur just before banking, as this not only kills some of the small worms but also disinfects the wounds. On young trees dilute the lime-sulphur with three or four parts of water."

Increasing Potato Yield

Continued selection of potatoes from the highest-yielding hills through several years will result in increasing the productivity of a variety. Yield, form and quality of the tubers can be noted at digging time.

By selecting seed from the highest yielding hills at digging time rather than by the usual method, without regard to productivity, potato yields were increased 9 per cent. in a test made at the Ohio Agricultural Experiment Station. A difference of 55 per cent. was found in the crop from seed chosen from the highest yielding and that from the lowest yielding hills.

When the best seed from the hill-selected potatoes was planted the second year, it yielded 26 per cent. more than seed chosen in the ordinary way. The product of the highest yielding hills was 228 per cent. more than that from the hills of lowest yield two years previous.

High yielding hills grown under average fertility and moisture conditions of the soil and in a full stand of plants can be chosen when the crop is dug. Form and freedom from disease, as well as yield, must also be taken into account in the choice of seed potatoes.

Single tests may be misleading. A hill may yield unusually well because of its environment and not because of inherent tendencies. By continuing the selection several years and discarding inferior hills, those that owe their superiority to favorable environment will be weeded out and only the offspring from productive hills will remain.

Utilizing Cull Apples

No food of any kind should be allowed to waste this year. Hence some provision should be made now, in the opinion of the horticulturist at the Pennsylvania State College, to prevent the large annual losses of lower grade or cull fruit. Such fruits may be dried, canned or made into cider, jellies, syrups and the various fruit butters and marmalades offer farther outlet for the utilization of cull fruit and are exceedingly appetizing. Cider making and drying are probably the most popular methods of consuming cull fruit.

As to which is most likely to be profitable, it may be noted that one bushel of fairly good apples should yield six and one-half to seven pounds of dried fruit evaporated to a moisture content of 25 per cent. In a well-equipped factory, this can be accomplished at an average cost of about two and one-half cents a pound, but at the home it will doubtless cost at least five cents. If the slicing, bleaching and drying are well done, the resulting product should be worth at least 8 to 10 cents a pound at home. This product requires no expensive containers, can be stored in small space, and will keep almost indefinitely under proper conditions. The original fruit can thus be converted into a relatively stable food, and can be made to yield a return of about 25 to 30 cents a bushel.

One bushel of well ripened apples should yield about two gallons of cider if made with a good home press, and about four gallons with a first-class power press. This cider should be worth about 10 cents a gallon, and hence would yield a return of 20 to 40 cents a bushel on the original fruit, minus the cost of making, which should be relatively small. The cider can then be carried over into vinegar, or it may be pasteurized and kept sweet indefinitely. The pasteurizing is best done by heating the fresh cider to a temperature of 149 degrees F. for one hour, and then sealing in sterilized containers.

Estimates made by the Bureau of Statistics place the Pennsylvania apple crop at about 2,000,000 bushels less than last year. The peach crop is much larger than a year ago, and the pear crop in the state will be about 447,000 bushels. This is about 50,000 bushels less than last year.

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Getting Ready for the Trap Line

CHARLES H. CHESLEY

The trapper who works in his own neighborhood has a considerable advantage at the start in the fact that he knows the territory and can make his plans some time in advance of putting out the traps. Old trappers find that it helps them to trap in the same locality year after year, for many trap-sites are used over and over again. Amateurs may well imitate the experienced men in this particular.

It is a good plan to go over the territory early in the fall, searching out the most promising locations for the traps. It is also well to lay out the trap line so that it can be covered with as little travel as possible. Where the country is not too thickly populated, a circular line is preferable. This gives a minimum amount of traveling with a maximum number of traps. Starting from home, or a given base, a semicircle covering several miles, may be completed in a few hours. Time is often a considerable factor in the calculation, especially with the school boy or the busy farmer. Where a considerable portion of the country is cultivated farm land, the trapping must, of necessity, be restricted to the river banks, swamps and isolated patches of woodland.

Having selected the territory, the next step is to plan the trap sites. Many of these will have to be artificial, and by preparing them several weeks before the traps are put in, the animals will become accustomed to the changes. It should be remembered that almost all creatures of the wild are very suspicious of any change that is made in or about their accustomed haunts. It is well, therefore, to build little houses or enclosures of stones or sticks, leaving an opening where the trap is to be put in later. These houses should be built upon the banks of rivers and along woodland streams. They will prove effective later, when it is time to put out the traps for mink and raccoon.

In localities where small streams are found, choose places in the heavier wooded sections and arrange hollow logs upon the banks of the brooks, also stretch an occasional log across the water from bank to bank. Minks spend much of their time about woodland streams, especially if trout or other small fish are found therein. Hollow logs are their natural homes and any mink wandering along the brook is sure to stop and investigate all holes in logs or among the rocks and roots. The wise trapper understands this trait and arranges his sets accordingly. Many such places will be found ready without preparation, but some may have to be made, and this work should be done some time in advance of the trapping season. Even if nothing else is done it is well to locate desirable spots and be ready when the season opens. One cannot find a lot of the best locations at short notice. It is also well to search out skunk dens, for the best success with this creature comes from traps set near their homes. By making a few trips along the river banks and about the distant pastures in the early fall, much valuable information will be picked up by the intending trapper. The men who have had the most success along the trap line are the ones who have made the closest study of the habits of the fur bearers.

The old trapper prepares his baits and scents some time in advance of using them; indeed, some of the scents are prepared in the spring or the winter before. The farm boy who is just starting out to trap can do little in the way of making baits in advance. He can, however, prepare fish oil, which is always useful in making sets for minks, raccoons, otters and foxes. This is prepared by procuring a quantity of small fish, or a larger one will do, and chopping the flesh into small pieces, after which it is put in a glass jar and the cover placed in position but not clamped down. The jar is then set in the sun and the fish allowed to rot for several weeks. The oil rises to the top and can be strained out with a fine sieve. This oil has a very far-reaching odor and will attract a mink from a considerable distance. One or two drops placed on a stick or mossy stone near the trap is all that is necessary.

It was an old rule that trapping could be done at any time beginning with September. "Trap furs and eat oysters during any month spelled with an R," has often been advised. Neither is true, for the luscious bivalve is now eaten at any time of the year and trapping is delayed until November and should end with February or early March for all animals except the muskrat. The skunk and raccoon become prime first, in northern sections being fairly good in late October, while in the more southerly localities trapping should be delayed a little. The opossum becomes prime at about the same time, likewise the "little skunk," or civet cat. The mink, otter and fox are at their best in December. The weasel is of little value except when snow covers the ground, while the badger is quite valueless unless it has been exposed to cold weather. The muskrat is the latest to become prime, being at its best in March and April.

It is advisable to get out the traps and have them in shape to set when the time arrives. New traps should be treated to give them an aged appearance. It is never wise to set traps having a bright and new color. Look over old traps carefully and test the springs. Sometimes a little rust will weaken the spring and cause it to break at the first setting. New steel traps may be treated in several ways. One method is to sink them in a muddy pool and allow them to remain in the black muck and slime for a week or more. Another is to boil them in a solution of walnut husks and water. This takes away the new appearance.

New Apple Packing Law

The Pennsylvania apple packing law became effective on September 1st, and all closed packages containing apples grown in the state must show in plain letters and figures the name and address of person by whose authority apples were packed, true name of variety, and the minimum size or numerical count of the fruit in the package.

This law was passed by the recent session of the Legislature and is Act No. 144. Copies should be in the hands of all apple growers of the state who sell closed packages, and can be secured from the Pennsylvania Department of Agriculture at Harrisburg.

The new law is aimed to bring about a uniformity in packing, prevent deception and establish a recognized standard for Pennsylvania apples, which are rapidly finding their way to the big markets and are being ranked with the finest apples grown in this country.

The Pennsylvania Department of Agriculture estimates, from reports received on the condition of the buckwheat crop in this state during August, that the yield will be approximately 6,440,000 bushels, an increase of 2,000,000 bushels.

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WHEN corn was selling for 50 cents a bushel, one of our dealers made this offer to a skeptical farmer: "Use this manure spreader to top-dress 20 acres of your 40-acre corn field, putting on eight loads to the acre. Leave the other 20 unmanured as you meant to do with the whole 40. I will take the difference in the yield between the two 20's for the spreader." The farmer agreed, thinking to get his spreader at a low price.
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Cheaper Poultry Feed

J. RAYMOND KESSLER

During the past year of high priced grain there has been a great deal of talk by poultrymen on the subject of cheaper substitutes for the grains in use, but it would seem as though it had amounted to little more than just talk. In truth, no radical change is likely to take place, for where shall we go to obtain a substitute for our three main poultry foods—wheat, corn and oats. Not only are they the main grains but they practically form all the mash mixtures, since corn meal, wheat bran, middlings and ground oats all come from them.

This being true, we cannot hope to entirely do away with these grains, but we can keep the cost down somewhat by partly displacing them with cheaper substitutes if prices make such a practice desirable.

Considering that grain is usually fed to fowls by measure and purchased by weight, oats is our cheapest grain, closely followed by cracked corn. A mixture of these two grains would be very fattening, not to mention the fact of it giving little or no variety. The addition of wheat, making a mixture of equal parts by measure of the three, makes an excelent and much used ration. Wheat being the highest in price, in fact almost prohibitive for feeding, practically doubles the cost of the mixture. However, it is exceedingly hard to do without wheat in making up a properly balanced ration, since wheat is as much a necessity in the grain mixture of the fowls as bread is in the food ration of man. At least this is true in the case of the specialty poultryman with little or no range for his fowls.

Considering a mixture of corn, wheat and oats as best, we can substitute in part the following grains without detracting to any great extent from the desirability of the mixture.

Where rye is cheaper than wheat it can be substituted for one-half of the wheat. When barley is cheaper than wheat it can be used in place of one-fourth of the wheat. Buckwheat can be used in place of a third of the corn with just as good results if cheapness makes it desirable. Kaffir corn is another feed that can usually be bought cheaper than other grains and the addition of 25 per cent. of this grain to the mixture makes a very good feed.

Of course, these are by no means all the grains used for poultry feeding, but they are the standbys of the poultryman with the more expensive seeds, such as sunflower, millet, etc., left out. Where these and other small seeds are cheap they can be added in small quantities to make variety, but they are not necessary, since the mainstays are corn, wheat and oats.

Another thing that will greatly help in reducing the cost of feeding is the use of damaged grains. Mow-burnt, weavel-eaten or weather damaged grains are usually sold rather cheap and for poultry feed are just as good as the first-class article. Corn nubbins can also be included in this class.

The wise poultryman will watch his chance to buy such material and thus save a great deal. One word of warning, however, must be given—never feed moldy feeds, no matter what the price, for only sickness and death will result from using them.

In making the mash mixture we can also save something if we will displace such high priced materials as linseed meal with short-cut alfalfa. Well cured leafy alfalfa can be used to the extent of 25 per cent. by measure, of the mash mixture. The best way to feed the alfalfa is to have it short-cut and then soak it in hot water for several hours, mixing with the mash in the proportion of one bucket of alfalfa to three of a good mash mixture.

If it is desired to feed the mash dry, then mealed alfalfa should be used in about the same proportion. The hens should not be started in at first on the quantity of alfalfa mentioned, since they will most likely reject the mixture. The start should be made with a small amount and gradually increased until the maximum is gained. The following mixture is a good one where the alfalfa is used as mentioned: 200 lbs. wheat bran, 100 lbs. middlings, 100 lbs. corn meal, 200 lbs. beef scraps, 100 lbs. ground oats.

Pennsylvania.

Worth While Poultry Suggestions

F. V. L. TURNER

Sooner or later the poultry producer is going to secure protection for his efforts—the onion growers of Texas combined to secure profitable returns for their shipments, instead of a bill for charges from the middleman. Texas is only one of a multitude of similar combinations.

Another worth while thought is the necessity for community cold storage, grain elevators, packing houses and an honest distributing agent—Canada, the Canadian Government, subscribes a goodly percentage of the cost of each cold storage plant to any community that will subscribe the balance—and Canada is full of these plants and she has practically buried her middlemen.

Community measures controlling distribution do not control the market, eternally juggled by speculators, but enough of it to be as forceful as it is in Canada, will make a mighty dent in the very vulnerable armor of a rapidly degenerating horde of parasites.

These cold, raw, damp days make inroads on the vitality of the heavy layer—over long periods a little oil meal can be successfully and profitably added to the ration.

Soon will come the time for housing the youngsters that are going to fill the egg basket next winter; cull now more closely than ever that there may be no epidemic started by a weakling—disease-catching and therefore a menace to the healthy birds.

Buy your breeders for next year now—don't follow the time-worn fallacy of letting the other fellow carry the winter risk on the males you need next spring—they may be sold by that time and it is safe to say they will be higher in price.

Preventing disease by sanitation and a little care is like pulling the poison fangs from the rattlesnake.

Mixed eggs bring mixed prices—put all of one color in a crate—have them all clean—be sure that none are thin-shelled—one broken egg in a crate may spoil the price on dozens.

The cost of candling is less than the extra sale value of a case of clear eggs—therefore candling pays. And a good reputation goes with it.

Dressing poultry is not so much an art as selecting only the best for market.

A small, still voice is rarely heard—tell your story to the multitudes—advertise.

Fatten the thin and sell the fat.

Disinfectants are never amiss in the sanitary conduct of any animal dwelling place—their use at this time is imperative beyond ordinary precautionary measures—there lurks in the cracks and crevices, the corners and knot holes, upon cobwebs and in the very dust of the whole house the identical germ family that will stalk your whole flock. Kill this family before its ravages are severely felt.

Care of Layers During the Molt

The fall season is the natural period during which the fowl goes through the molt, and when egg production drops to its lowest figure during the year. It is the exceptional fowls that will keep up egg production while undergoing the molt. The molting period is naturally the bird's resting period. These facts should be borne in mind in managing laying flocks at this season. Many methods have been tried with the object of forcing or hastening the molt. It is a question whether or not such methods are advisable, in the opinion of poultrymen at the New Jersey Agricultural College. The best method of taking care of the laying flocks during this time is to keep up the same general method of feeding as is usually practiced, with the addition of a small amount of sunflower seed to the grain ration. The content of the sunflower seed is similar to that which is found in the feathers of the bird. The use of oil meal and other heavy protein-bearing feeds is usually partially effective in hastening the development of new feathers, as the body of the bird must change the form of protein received from such source into a quite different substance. It will probably take from two to two and a half or three months fully to complete the molt in the general laying flock. On the average farm the pullet flocks will begin egg production during this time, thus keeping up a fairly uniform appearance during the fall season.

Popularity of White Leghorns

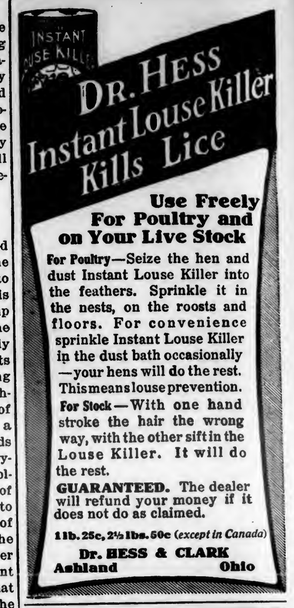
Observers for the Pennsylvania Department of Agriculture report that in the last two years the White Leghorn has so gained in numbers that today it outnumbers all other chickens in the State. Years ago the American Dominique led; then for many years Barred Rock led; then the Rhode Island Red pushed this latter in the race for popularity; now the White Leghorn apparently leads.

Part of this new development lies in the premium white shelled eggs are fetching. But a bigger factor has been that the White Leghorn is universally used on the regular poultry or egg farm and these farms usually having a "mammoth" incubator and selling day-old chicks, such chicks were readily available and hence were used.

Probably if Rock or Red chicks had been as readily available this change to White Leghorns would not have occurred. As an indication of the tremendous number of White Leghorn eggs produced in this state, New York Produce now quotes eggs thus: "Pennsylvania and nearby whites fancy."

The White Leghorn is built for egg production, has had more breeding and selection spent on it for this specialty purpose than probably all other breeds put together and perhaps this turn to popularity was inevitable.

A decrease of 20 per cent. in the number of young turkeys hatched as compared with last year is indicated by reports received by the Pennsylvania Department of Agriculture.



Use Freely For Poultry and on Your Live Stock

For Poultry—Seize the hen and dust Instant Louse Killer into the feathers. Sprinkle it in the nests, on the roosts and floors. For convenience sprinkle Instant Louse Killer in the dust bath occasionally—your hens will do the rest. This means louse prevention.

For Stock—With one hand stroke the hair the wrong way, with the other sift in the Louse Killer. It will do the rest.

GUARANTEED. The dealer will refund your money if it does not do as claimed.

1 lb. 25c, 2½ lbs. 50c (*except in Canada*)

Dr. HESS & CLARK
Ashland Ohio

1917 Overland Sale

We have purchased from the Overland Motor Co., of Philadelphia, former Overland Agents, all their 1917 Demonstrating and 1917 and 1916 Used Overland Cars. We bought these cars at a terrifically low price and shall sell them at a

Price Never Known Before

For an Overland Car. They are all like new. Also 1000 other cars, including every known make, in 1917-1916 models, $200 up. Write today for our Fall

Auto Catalog No. B It's FREE

and full of valuable information for the man who expects to buy a car and save money.

ROMAN AUTO CO.
World's Largest Auto Dealers
203 N. Broad St., Philada.

Unusual Tires

Tires that are puncture proof and absolutely reliable in every test, and yet cost little; are unusual tires.

OUR DOUBLE TREAD TIRES are guaranteed to measure up to any test you give them.

The following are the little prices of our guaranteed tires.

Sizes	Price	Sizes	Price
30x3	$6.50	36x4	$11.00
30x3½	7.50	34x4½	12.00
32x3½	8.50	35x4½	12.00
32x4	10.50	36x4½	13.00
34x4	10.50	37x4½	13.50

Send us your old worn tires. We will not only retread them but guarantee them at these little prices.

Sizes	Price	Sizes	Price
30x3	$5.50	36x4	$8.50
30x3½	6.00	34x4½	8.50
32x3½	7.00	35x4½	9.00
32x4	8.50	36x4½	9.00
34x4	8.50	37x4½	10.00

Add $1.00 to the above for Non-Skid Tire

R. K. TIRE COMPANY
837 No. Broad St., Philadelphia, Pa.
Send for descriptive booklet and price list. Good territory open for agents.

SAVE YOUR FENCE BY USING **CONCRETE FENCE POSTS**

ROT PROOF RUST PROOF FIRE PROOF

Easily made by yourself from wooden molds. Nothing to buy but the cement. My complete directions (including blue print) cover everything from making the molds to attaching the wires. Price $1.00. Write for free booklet.

HARRY G. LEE, 1210 GOKEY BUILDING — ENGINEER AND SURVEYOR, JAMESTOWN, NEW YORK

Ferrets for Sale PRICE LIST FREE **MAX KELLAR** R.F.D. No. 1, Wakeman, O.

90 Varieties. Poultry, pigeons, dogs, ferrets, guinea pigs, hares etc., folder free. Colored descriptive 60-page book—10c. **Bergey's Pet Farm, Telford, Pa.**

Marketing Poultry Advantageously

BERTHA M. TYSON

Sometimes I think more time and space should be devoted in the agricultural and poultry press to marketing poultry to the best advantage. I shall not discuss the marketing of eggs, as they are now high in price and there is no trouble to market them; the rub is to get the hens to lay so we may have the eggs while the price is high.

I have found the parcel post a wonderful adjunct to marketing my fowls, and have been shipping them, carefully dressed and well packed in clean, attractive packages, to New York, Philadelphia and Baltimore, and am able to get for them from 6 to 10 cents per pound more than I can get for them at home. Some say this is too much if the high cost of living is to be reduced. I argue that the consumer is benefited quite as much as myself, because for the same price or a few cents per pound less, he is able to get a freshly killed, well fattened, delicious fowl delivered to his door, whereas, in the market he is more apt to get a cold storage fowl killed perhaps a year before, and often gets fowls not grain fattened, which in no way compares with the grain fattened fowls I am sending out and which all farm people may send out if they will take the trouble to look after them and work up a trade in the city. That seems to be the most difficult, but there are few of us in the country who have not good friends in the cities. My plan has been to sell to friends first, and they tell their friends and neighbors and it is not long until your market is coming to you, for the delicious, fresh fowls tell the story to those who partake of them; though dead, they speak and work for their raiser.

I send turkeys, guineas, broilers, roasting and frying chickens, ducks, etc., and I think we should all make use of this splendid way of marketing our fowls. The cost is very little, seldom more than 12 cents for a pair of medium sized fowls, and a 15-pound turkey can be sent for 20 cents. I have used new slat baskets to ship in and find them very satisfactory. I wrap the fowls in clean paper and either cover the top of the basket with a clean piece of muslin sewed around, or else use a piece of cardboard to fit, with heavy cord sewed from one side of the basket to the other to hold the cardboard down where it belongs. The package must be plainly marked, and "Perishable" written plainly on it, as this insures more prompt delivery upon arrival.

I frequently ship fowls to New York from my home in northeastern Maryland, on our 4.45 train, and they are delivered in New York the next morning at 9 o'clock, which I think is more promptly than my customer would get fowls if ordered in New York this evening for early delivery.

Of course, I often sell cockerels and pullets, too, for use as breeders, but this suggestion of marketing by parcel post refers to fowls one wishes to sell for the table, and we farmers' wives and daughters are just as anxious to get as much for our products as the people in any other business and we cannot understand why so many people think we should not. Some people seem to class farmers, their wives and daughters, in a class where they should not enjoy the luxuries and blessings of life. Is it because for so many years we have not had our own? If so, they may as well grant us all that is coming to us, for we have made up our minds to put the best we have into life, and our lives are mostly for others, and we expect to get the best possible out of it.

Maryland.

Animal Protein for Laying Hens

For best egg yields hens need some animal protein supplement in connection with corn. Meat scrap and tankage may be used for this purpose.

Hens fed 1.6 pounds of meat scrap in a feeding test conducted at the Ohio Agricultural Experiment Station produced an average of 92 eggs in one year. Another lot given 11.6 pounds of meat scrap produced 141 eggs per hen in the same time. The extra feed costing 19 cents a hen, returned a profit of 74 cents.

Tankage was a satisfactory substitute for meat scrap in the ration for laying hens in another test and reduced the cost of production. While hens fed meat scrap along with corn and bran laid 121 eggs per hen in one year, others fed tankage in place of meat scrap produced 122 eggs per hen at a slightly lower cost.

The Care of Range Cockerels

The separation of the cockerels from the pullets while on the range is necessary in the successful raising of both cockerels and pullets, advises the New Jersey Experiment Station. The young males are at the age when they annoy the pullets, thus tending to deprive them as well as themselves of their full growth, for they should not be mated until both have reached full maturity. Keeping the cockerels separated from the pullets will also cause less fighting than if they were allowed to run together. All male birds should be put in a run by themselves at the same time, that is, part should not be put in at one time and part at another, for this is almost sure to cause fighting. A strange bird is generally welcomed with a fight. When it is necessary to put male birds on range at different intervals, they should be placed in different yards. They should not be changed after they once have been put into their various yards until it is time to place them with their several pens of females, and then only males from the same group should be put together in the same pen with females, as far as possible.

The cockerels should be given fully as good care as the pullets. Provide a grain ration morning and night, with a dry mash before them at all times. Give plenty of fresh, clean water, set in a cool, shady place easily accessible to them. Supply plenty of shade, either natural or artificial.

Wonderful Egg Producer

Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and makes hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker, write E. J. Reefer, poultry expert, 4366 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his Free poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

DU PONT AMERICAN INDUSTRIES

Is the Enemy on Your Farm?

This is a war of endurance. Men and money are important but—*food counts most.* Soldiers who fight must eat. So must their dependents at home. The world must be fed.

Every idle acre of reclaimable land on your farm aids the enemy. Every acre of untilled soil deprives many needy mouths of food.

The sinking of each food ship is a disaster, but the idle acres of America could grow more food per year than all of the enemy's submarines can destroy. Fight the enemy now, with

DU PONT

RED CROSS FARM POWDER

It is the most efficient reclaimer of cut over, boulder strewn or swamp land. It helps to solve the labor problem, enables one man to do the work of many and does it better and quicker.

Get our big book free Write immediately for your copy of
THE GIANT LABORER NO. 37F
E. I. DU PONT DE NEMOURS & COMPANY
WILMINGTON, DELAWARE

The Simplex Soil Tester

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"GOOD BOY," they say, if he puts $500.00 in stock and takes out $800.00. "CLEVER." But, if he puts a few dollars in a SIMPLEX TESTING MACHINE AND SAVES thousands of dollars by knowing at all times the exact number of pounds of lime and ground limestone his soil contains and requires at a cost of 3c per test nobody notices it. WHY? Because there is no speculation to it. His cleverness is only Business Sense. Thousands of farmers the world over are now saving thousands and thousands of dollars that heretofore they have been throwing away. HOW? By using the SIMPLEX SOIL TESTING MACHINE and looking right into their soil and ascertaining the amount of lime or ground limestone their soil contains and requires before planting. Just merely GOOD SOUND BUSINESS that has knocked the spots off of GUESSING. GUARANTEED TO BE ACCURATE AND SATISFACTORY or your money back. ORDER ONE TODAY OR WRITE FOR FREE LITERATURE.

Simplex Manufacturing Co., Dept. XX 257, **Baltimore, Md.**

Feed the Fighters! Win the War!
Harvest the Crops! Save the Yields!

On the battlefields of France and Flanders the United States boys and the Canadian boys are fighting side by side to win for the World the freedom that Prussianism would destroy.

While doing this they must be fed and every ounce of muscle that can be requisitioned must go into use to save this year's crop. A short harvest period requires the combined forces of the two countries in team work, such as the soldier boys in France and Flanders are demonstrating.

THE COMBINED FIGHTERS IN FRANCE AND FLANDERS AND THE COMBINED HARVESTERS IN AMERICA WILL BRING THE ALLIED VICTORY NEARER

A reciprocal arrangement for the use of farm workers has been perfected between the Department of the Interior of Canada and the Departments of Labor and Agriculture of the United States, under which it is proposed to permit the harvesters that are now engaged in the wheat fields of Oklahoma, Kansas, Iowa, North Dakota, South Dakota, Nebraska, Minnesota, and Wisconsin to move over into Canada, with the privilege of later returning to the United States, when the crops in the United States have been conserved, and help to save the enormous crops in Canada which by that time will be ready for harvesting.

HELP YOUR CANADIAN NEIGHBORS WHEN YOUR OWN CROP IS HARVESTED

Canada wants 40,000 Harvest Hands to take care of its
13 Million Acre Wheat Field

One cent a mile railway fare from the International Boundary line to destination and the same rate returning to the International Boundary. High wages, good board, comfortable lodgings.

An Identification Card issued at the boundary by a Canadian Immigration Officer will guarantee no trouble in returning to the United States.

AS SOON AS YOUR OWN HARVEST IS SAVED, move northward and assist your Canadian neighbor in harvesting his; in this way do your bit in helping "Win the War."

For particulars as to routes, identification cards and place where employment may be had, apply to Superintendent of Immigration, Ottawa, Canada, or to

F. A. HARRISON, Canadian Government Agent, 210 North Third St., Harrisburg, Pa.

Why the Price of Wheat was Fixed at $2.20 a Bushel

THE WHITE HOUSE.
Washington, August 30, 1917.

Section 11 of the food act provides, among other things, for the purchase and sale of wheat and flour by the Government, and appropriates money for the purpose. The purchase of wheat and flour for our allies, and to a considerable degree for neutral countries also, has been placed under the control of the Food Administration. I have appointed a committee to determine a fair price to be paid in Government purchases. The price now recommended by that committee—$2.20 per bushel at Chicago for the basic grade—will be rigidly adhered to by the Food Administration.

It is the hope and expectation of the Food Administration, and my own also, that this step will at once stabilize and keep within moderate bounds the price of wheat for all transactions throughout the present crop year, and in consequence the prices of flour and bread also. The food act has given large powers for the control of storage and exchange operations, and these powers will be fully exercised. An inevitable consequence will be that financial dealings can not follow their usual course. Whatever the advantages and disadvantages of the ordinary machinery of trade, it can not function well under such disturbed and abnormal conditions as now exist. In its place the Food Administration now fixes for its purchases a fair price, as recommended unanimously by a committee representative of all interests and all sections, and believes that thereby it will eliminate speculation, make possible the conduct of every operation in the full light of day, maintain the publicly stated price for all, and, through economies made possible by stabilization and control, better the position of consumers also.

Mr. Hoover, at his express wish, has taken no part in the deliberations of the committee on whose recommendation I determine the Government's fair price, nor has he in any way intimated an opinion regarding that price.

WOODROW WILSON.

Report of Committee.

The report of the committee follows:

UNITED STATES FOOD ADMINISTRATION,
Washington, August 30, 1917.

TO THE PRESIDENT OF THE UNITED STATES:

The undersigned committee has been asked by you to recommend the price which the Government should pay for the 1917 crop of wheat.

In its deliberations the committee has kept constantly in mind the three following factors:

First. The fact that the United States is at war.

Second. The need of encouraging the producer.

Third. The necessity of reducing the cost of living to the consumer.

The normal laws of supply and demand have been violently interfered with and Congress has undertaken to offset this disturbance by conferring extraordinary powers upon the President to stabilize prices. Each of the foregoing factors grows out of conditions which have received the careful attention of the committee. Chief among them are: That the wheat yield in a great and important section of the country has this year been below the normal; that over against this situation is the crying need among the whole body of the population, especially the wage earners, that the rising tide of costs shall be stayed and reduced as rapidly as possible consistent with the welfare of the producer; that the Government is at the present time engaged in the great task of reducing and stabilizing costs of other staple commodities; that the wheat of the world is abundant for its needs even disregarding the stores in Russia, but because of lack of shipping and war conditions the burden of supplying wheat to the allies and to neutral nations rests for the time being upon the United States and Canada.

Considered 1918 Minimum Price.

Your committee has also considered the fact that the Government price for the 1917 wheat crop is in effect a continuing guaranty until the minimum price guaranteed by Congress for the crop of 1918 goes into effect (July 1, 1918). It has considered the relation of the 1918 minimum price guaranty to the price here recommended. It has also considered the effect which an early termination of the war would have upon the wheat markets of the world.

In reaching its conclusion the committee has been guided by the principles you have announced, that a fair price should be based upon the cost of production for the entire country, plus a reasonable profit. We have relied upon the cost estimates for the crop of 1917 furnished by the United States Department of Agriculture, checked by the results of our independent investigations and the evidence submitted to the committee by producers and their representatives.

The committee has considered the regulations recently established by the United States Food Administration Grain Corporation for the different grades of the wheat through which all transactions in wheat are to be standardized and speculation to be entirely eliminated. Also that profits to the grain dealer, miller and flour dealer have been regulated and reduced by the Grain Corporation, effecting a material reduction in the cost of flour.

In consideration of the foregoing facts and circumstances, this committee respectfully recommends that the price on No. 1 Northern Spring wheat, or its equivalent, at Chicago, be $2.20 per bushel.

Respectfully submitted.

H. A. GARFIELD, *Chairman.*
THEO. N. VAIL.
J. W. SULLIVAN.
E. F. LADD.
F. W. TAUSSIG.
EUGENE E. FUNK.
H. J. WATERS.
C. S. BARRETT.
J. W. SPORTHILL.
L. J. TABER.
W. N. DOAK.

Wheat Differentials.

The following are differentials between grades and classes of wheat and between the different primary markets of the United States as established by the United States Food Administration upon which the committee on prices based its recommendation of $2.20 for No. 1 Northern Spring wheat at Chicago, or its equivalent:

Prices at Interior Primary Market.

No. 1 Hard Winter, No. 1 Red Winter, basic grades, equivalent of No. 1 Northern Spring.

	Government price
No. 1, Dark Hard Winter	$2.24
No. 1, Hard Winter, basic	2.20
No. 1, Red Winter, basic	2.20
No. 1, Yellow Hard Winter	2.16
No. 1, Soft Red Winter	2.18
No. 1, Dark Northern Spring	2.24
No. 1, Northern Spring, basic	2.20
No. 1, Red spring	2.18
No. 1, Humpback	2.10
No. 1, Amber Durum	2.24
No. 1, Durum, basic	2.24
No. 1, Red Durum	2.13
No. 1, Red Walla	2.13
No. 1, Hard White, basic	2.20
No. 1, Soft White	2.18
No. 1, White Club	2.16

No. 2 of grade, 3 cents less.
No. 3 of grade, 6 cents less.
No. 4 of grade, 10 cents less.

Relative Market Basis.

Kansas City, 5 cents less.
Omaha, 5 cents less.
Duluth, 3 cents less.
Minneapolis, 3 cents less.
St. Louis, 2 cents less.
Chicago, basis.
New Orleans, basis.
Galveston, basis.
Buffalo, 5 cents more.
Baltimore, 9 cents more.
Philadelphia, 9 cents more.
New York, 10 cents more.

Caution Regarding Seed Wheat

A warning to American farmers not to be misled, in their zeal for increased wheat production, into planting abnormally high-priced seed for which extravagant claims are made, has just been issued by the United States Department of Agriculture.

"Wheat is attracting, at the present time, greater attention than perhaps ever before, owing to its comparative scarcity and high price and the necessity of sowing a large acreage this fall," says the department statement. "As might be expected, therefore, various persons are offering to the public, varieties that they describe as far superior to the kinds now being grown. These varieties are usually given some catchy name and extravagant claims are made for them.

"A favorite scheme employed by those having wheat for sale for which they wish to obtain exorbitant prices is to claim that their variety requires but a small amount of seed per acre. A peck of seed, twenty pounds, and a half bushel per acre, are amounts frequently mentioned. Of course, the claims of maximum yields from these small seedings are not substantiated by fact. Only on dry lands or under very special conditions is the seeding of as little as even 45 pounds per acre of wheat advisable. On nearly all of the wheat lands of the country it is more profitable to sow from a bushel to two bushels of seed per acre than to sow less than a bushel.

"Radical claims of high yields are made for some varieties of wheat. It is not uncommon in advertising a new variety for an unscrupulous or uninformed promoter to claim yields four or five times that of the average yield of the country. Claims as high as 15 or more times the average yield have been made in special cases. Such claims are absurd and no one need be misled by them. A well-bred variety in the section to which it is adapted may yield a few bushels more than the varieties being commonly grown. Very seldom, indeed, can a doubling of the yield be expected. Buying seed grown at a great distance from home is another thing that wheat growers should be on their guard against."

Bee Observations

Poor honey crops are usually synonymous with poor beekeeping, observes E. F. Phillips, Agriculturist of the U. S. Department of Agriculture. Bees without protection suffered severely last winter. The spring was cold and wet and many colonies already weakened by poor wintering succumbed. Breeding was very slow and three cold periods in April and May sometimes stopped brood rearing entirely. Spring dwindling was unusually common. Colonies headed by old or failing queens were especially handicapped. In some localities large numbers of colonies actually died of starvation in early June with the honey flow in sight. Bees in proper condition during winter and spring secured a good crop of honey, while the majority secured but little. Copious rains developed heavy clover bloom, but workers of the right age were too scarce to take advantage of the flow when it came. Heavy breeding came too late.

Now is the time to get ready for a big honey crop next spring, and to prevent a repetition of such conditions. Every colony should be headed by a young, vigorous Italian queen in August or early September. Plenty of room for winter stores and for raising a large winter cluster of young bees should be given. Provide plenty of winter packing on top, bottom and sides and protection from prevailing winds in early autumn and leave it until May 1. It is best to winter in two full hive bodies with plenty of stores and packing.

The clover honey crop is light. Markets are now almost bare, the demand is good and prices are keeping up. Develop your home market to secure the best retail prices, at the least expense to yourself. Local demand will take all the white honey in the Middle Atlantic States, if the beekeepers act promptly.

Running wheat through a fanning mill so as to plant only clean and plump seed is a sure way to increase next year's crop and have some good chicken feed for present day needs.

What will raise bumper crops of winter wheat at least cost?

BERG'S ANIMAL FROM THE FARM THEY ARE

Bone & Meat Fertilizer

Enriches the soil Increases the profits

Ample proportion of Ammonia (4 per cent) produces better root growth; makes available the potash already in your soil. And big content (17 per cent) of Phosphoric Acid in that form which is available when most needed—when the wheat is heading next spring. Ask for booklet "A"

THE BERG COMPANY
Established 1873
Ontario St. near Delaware River
PHILADELPHIA, PA.

DEALERS AND AGENTS *wanted in unoccupied territory. Get our proposition "A"*

Better Buy That Buggy NOW

Save $20 to $40

I am going to give buggy buyers a chance to buy genuine Split Hickory buggies at prices they will never get again. Material costs are going higher every day — so are buggy prices. But if you act at once you can save from $20 to $40 on your buggy. Write NOW — just write a postal and get my "Free Harvest Cut Price List" and catalog of my famous

SPLIT HICKORY

Buggies and Harness and see the big bargains I am offering those who buy NOW before the higher prices go into effect. See how I will save you $20 to $40 on any of the 160 stylish, snappy styles shown. Next year prices will almost double. I give 30 Days FREE Road Test and 2 Year Guarantee. Split Hickory Vehicles always give satisfaction. Don't delay—send today and get my big money-saving prices.

H. C. PHELPS, Pres.
The Ohio Carriage Mfg. Co.
Station 27
Columbus, Ohio

Get Cash out of your OLD BAGS

You'll be surprised how much money we will pay you for your old bags, torn or sound,—any quantity. Don't let them lie around and rot when you can turn them into money.

WE PAY THE FREIGHT

and we mail check as soon as shipment is received. Take advantage of present high prices—write today for price-list and shipping instructions. Largest direct buyers of bags in the world. References—Citizens Bank of Buffalo, Dun or Bradstreet.

IROQUOIS BAG CO.
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Steel and Concrete in the Cow Stable

OUR EXPERIENCE POOL

We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1228, OCT. 1.—How have you solved the problem of disposing of the sewage from your bath, toilet and sink? How much did your system cost to install and what have been the results? Tell us in not more than 250 words what you know of this subject.

TOPIC No. 1229, OCT. 15.—What has been your experience this year in spraying the orchard and thinning the fruit? Have you or your neighbors tried the new "dusting" method? Do you own your own spraying outfit, hire the work done or combine with neighbors?

TOPIC No. 1230, Nov. 1.—What plans have you made for extra work this winter? Will you crush stone, install a sawmill, grind limestone or cut fodder for yourself and neighbors? Tell us your experience with any of these jobs and what kind of power you have found most satisfactory.

G. H. D., Warrenton, Va. — By the pactical use of steel and concrete and by providing plenty of windows for light and ventilation, I converted an old barn into a modern dairy stable at a cost of only $250. Instead of buying steel stalls and stanchions of standard make, I purchased galvanized pipe and the necessary fittings and had the pipe bent and cut as needed, and built and installed the equipment myself at a saving of 30 per cent. over what I would have had to pay if I purchased the dairy fixtures from a dealer. My steel stalls and stanchions cost me $4.85 apiece set in place in the dairy barn. Consequent on the high

Example of What Home Labor Did at Small Expense to Make the Cows Comfortable

price of galvanized pipe at the present time, it would now be impossible to duplicate this work. However, I advise the use of ordinary black iron pipe, which can be frequently painted with a bronze or special stall paint, making it presentable and efficient.

With the aid of a jackleg mason I put concrete floor, gutters and feeding troughs in my dairy barn at a gross cost of approximately $1 per square yard. I used the best of cement, sand and crushed rock and never stinted as regards cement, so as to make the job as permanent and durable as possible. I bought some heavy 4-inch lengths of galvanized pipe, which I packed full of a neat mixture of cement and sand so as to make solid columns, which I used as supports to brace the beams which carried the weight of a hay loft with capacity for 50 tons, which was over the dairy stable.

Today my barn is used for the production of semi-certified milk of low bacterial count. The stable satisfies the requirements of the rigid inspection demanded by the city board of health. This barn accommodates 16 full age dairy cows. I consider the remodelling of this barn and its conversion into a dairy stable one of the best investments which I ever made.

Success in dairying and an attractive, dependable, monthly income from the sale of market milk have caused me to expand my operations and erect another new gambrel-roof, plank truss frame dairy barn 52x32 feet in dimension, which accommodates 22 Holstein cows and has two feed rooms on the ground floor and an unobstructed hay mow with a capacity for 65 tons overhead. This barn is also equipped with inexpensive, steel stalls and stanchions, and supporting columns the same as the remodelled barn. I now have excellent accommodations for 38 milch cows. My Holsteins average to produce $215 worth of milk each per year. It costs about $130 a year to feed and care for each cow, so that the herd averages to return a net income of $85 per cow. In my section the price of milk advances 7 cents per gallon October 1st, but in view of the unusually high price of grains, supplies and farm labor, the average net income will remain about the same. My hearty advice to any farmer who is situated so that he can engage in dairying is not to delay another moment from engaging in this profitable and practical branch of farming, which enriches the farmer and the soil in the right ratio.

H. G. T., Marple, Pa.—When we built our new cow stable to accommodate our growing herd of 13 registered Jerseys, we made good use of steel and concrete. As you will see from the photograph we are sending you, the stable has a clean, airy, inviting appearance and is easily kept in a sanitary condition. The cows stand face out, giving us a wide passage way in back of them to do the necessary work. You will notice only half the stall is concrete floor, the front being just a clay floor, which we think is more comfortable for the cows. In building the 20 stalls and two large box stalls, including the gutters and mangers, which gives us a capacity of 24 head, we used 35 bags of cement. All the work was done by the farm labor according to the standard concrete instructions sent out by the various manufacturers. The stanchions are a standard steel make and cost us less than $6 a stall. In these days of high labor costs the time we save in having efficient equipment for caring for our herd will soon repay us for the small amount of money invested, aside from the satisfaction we have in knowing our cows are clean and comfortable.

M. M. C., McKees Rocks, Pa.—Eight years ago I rebuilt my barn over the frame of the old one, making the new one 8 feet wider and 20 feet longer than the old one. In the barn now are four stables on the ground floor, as it is a bank barn. I used a plank floor in the cow stables until three years ago, when I put in a cement floor, doing the work myself with the help of two hired men. There is room for 18 cows, but we usually keep 9 cows and the remainder are young stock and beef cattle. The stalls and mangers are made of oak, as I had plenty of material on hand, and prefer it to steel. The cement cost me about $40 and I had the sand and gravel left from the time I built the barn.

It is a very profitable investment, as it is much easier kept clean, the water drains from it perfectly, making the stable dry in all seasons, and it is permanent. We use plenty of bedding and find it the best flooring we have ever had.

Miss I. E. B., Franklinville, N. Y.—In 1908 we built a new cow stable, using concrete for the floor, which cost us $40. We consider it a very profitable investment indeed. It has been easier to keep clean than the old wooden floor, and keeps much drier. We made our stanchions of wood, so have made no use of steel in our cow stable. We have water pipes running along the stanchions which carry the water to each cow. As we keep 29 cows and milk two-thirds of that number the year around, we have proved the wearing qualities of concrete to be much superior to wooden floors, which, after years of constant wear, give out to such an extent as to often cause serious accidents among the cows.

With concrete the first expense is the only expense. Yes, from all points of the question, concrete in the cow stable we think a most profitable investment.

E. C. T., West Chester, Pa.—One of the most satisfactory small jobs we have done on the farm was three years ago when we replaced the wooden gutters in the cow stable with concrete. We had no crushed stone, so used only field stones and creek gravel and sand. In the bottom of the gutter and where the cows' hind feet stand, we placed stones on edge about 6 inches deep. We then set the frame for the gutter, simply two old 6-inch fence boards held 12 inches apart, according to outside measurements, and poured the mixture in, allowing it to filter down between the stones and troweling it level at the bottom of the boards. In this way the bottom of our gutter is no uniform thickness of concrete, but is one solid mass, and after three years use shows no signs of wear. We use a steel square-pointed shovel just the width of the gutter for cleaning out the stable and the cut corn fodder which we use for bedding absorbs all the liquid, so that none of it is lost. The back wall of our gutter is 4 inches wide and 6 inches deep, but the front, or where the cows stand, is 12 inches wide and tapers from 6 inches at the gutter to 2 inches at the front. We did all the work ourselves and are not able to give even an approximate cost at this time.

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The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address
WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

OCTOBER 1.—If you put up more preserves, jellies, canned and dried fruits and vegetables than you need for home consumption, how do you market them and what prices do you propose to charge this year? How do you pack them for shipment? We feel that many farm women have prepared to meet the town demands for preserved food supplies this winter and will welcome the experience of others as to methods of marketing and packing and prices to ask.

OCTOBER 15.—Eggs will be high this winter. What can we do now (Oct. 15) to help have a good supply? What and how do you intend to feed your hens this winter? Limit your manuscript to 250 words.

NOVEMBER 1.—What have you to say regarding the tendency of farmers to own automobiles? Is a pleasure car of any use on the farm except for pleasure riding? Are the up-keep charges high? Why don't you want to return to the buggy or "jump-seat" traveling days?

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

Economical Griddle Cakes

Miss J. M. G., Buchanan, Va.—Now when economy of breadstuffs is not only the duty, but the privilege of every housewife, not for the sake of our beloved country only, but for all the hungry world, we are finding that many materials not so used hitherto, may be added to wheat flour or corn meal for bread.

To any good receipt for griddle cakes, left-over vegetables of almost any kind (especially starchy ones, as corn, beans, pumpkins, potatoes, etc.) may be added (one cup of vegetables to two of flour or meal), or a combination of several vegetables, using judgment with regard to amount of lightening, etc., as potatoes and some others will make the cakes heavy without the addition of extra baking powder, and also less liquid is required where the vegetable contains much moisture. Any experienced cook can make such changes as she thinks necessary, and a "try cake" may easily be baked to see if the batter is just right. If the vegetable contains acid a little soda will, of course, correct it. Cold boiled rice with corn meal is one of our favorite combinations. Any left-over mush or porridge with either flour or corn meal, makes a change which is welcome to the palate, as well as economical. In slicing bread all crumbs are saved, as well as all broken or stale bread and soaked in either sour milk, sweet milk or water and used for griddle cakes.

It is a great convenience to keep on hand a prepared flour such as this: 2 cupfuls wheat flour, 1 cupful buckwheat flour, 1 cupful graham or whole wheat flour, 1 cupful corn meal, 2 teaspoonfuls salt, 4 level teaspoonfuls baking powder, 1 scant teaspoonful soda. Sift thoroughly and mix with either warm water or sweet milk when ready to use. When it is at hand I prefer to use 1 pint sour milk with 1 level teaspoonful soda, in mixing all quick breads.

We also like cakes made with 1 quart stewed tomatoes, 1 egg, 1 small teaspoonful soda, 1 teaspoonful salt and either flour or meal to thicken, or part bread crumbs is good. Very good griddle cakes may be made without eggs, sugar or shortening, but sugar or molasses aids in browning. Being very light meat eaters, we need eggs and usually use one or more to each pint of liquid. Any kind of fruit syrup is good to serve over them, that from sweet pickle being particularly liked by some. Personally I prefer butter to anything else, but when that is scarce a thin drawn butter or white sauce is good. Stir 1 level tablespoonful of flour with 2 tablespoonfuls butter, cooking oil, sausage fat or good sweet drippings; cook with 1½ cupfuls water or sweet milk and salt to taste. If the fruit syrups are too heavy and rich they may be thinned with boiling water or added to a thin corn starch sauce.

Mrs. D. N. J., Cream Ridge, N. J.—For economical griddle cakes take 2 cupfuls white flour, 1 cupful corn meal, 1 teaspoonful baking soda sifted in the flour, 1 teaspoonful salt and sour milk to make a thin batter that drops off the spoon quickly. A well beaten egg improves them, but they are very good without it. Another receipt for those who like old-fashioned raised griddle cakes is 2 cupfuls white flour, 1 cupful corn meal and 1 cupful buckwheat flour. Dissolve one yeast cake in a little warm water and add to the flour mixture also 2 teaspoonfuls of salt and warm water enough to make a medium thick batter. I stir them in the evening and next morning when ready to bake I thin them with warm water to the desired consistency, adding half a teaspoonful of soda and 2 tablespoonfuls of sugar. You may have them for a long time by leaving a cupful of the batter in the jar and at night stirring in the flour mixture and warm water to make about the same amount that you had in the beginning, thinning them the next morning as before. I make milk gravy for the cakes by using the brown grease in the bottom of the pan after frying ham or bacon and adding a little dry flour, stirring and rubbing it into the grease until it is light brown, then gradually add milk and stir constantly until it thickens to a creamy consistency, and season with salt and pepper to taste. Of course, we serve syrup and occasionally fruit jam.

Mrs. T. S., Canton, O.—We are all very fond of griddle cakes and I make them different ways. A cupful of cold cooked rice, oatmeal, grits or any cereal, a few mashed potatoes, an egg or two, a tablespoonful of flour, a little salt, dropped by large spoonfuls on hot greased pan, baked in hot stove until a rich brown, or turned over on greased pan just as one prefers, are fine with butter, and they save many left-overs. I use the left-over cereals and potatoes one day for breakfast cakes the next.

Corn griddle cakes are extra good and should be eaten often while we can get the green corn. I cut off the tops of the grains, using only the scraped out part. To make them, take 2 cupfuls corn, ½ cupful of flour, 1 spoonful butter, 1 teaspoonful baking powder, salt to taste, tablespoonful sweet milk or cream; put in hot greased pan with cover and when brown turn over.

Another good cake is 1 cupful corn meal, 1 cupful sour milk, 1 teaspoonful baking powder, a little salt and soda, 2 eggs and turn on greased pan.

We are very fond of potato cakes. I cream potatoes, adding salt and pepper, a little flour and cream; an egg if I have it; if not, they are good without it, fried brown in meat grease.

Sweet potato cakes are delicious. Boil and mash potatoes, add a little sugar, a very little salt, a little flour, butter and cream. Bake on greased pans. With some of these cakes we use only butter, with others we use fruit syrups or syrup made by boiling brown sugar in a little water; the children like this best. These cakes, boiled or baked potatoes and baked beans will all help to save wheat bread.

Mrs. W. J. L., Canastota, N. Y.—Our favorite griddle cakes are made from 1 cupful thick sour milk, 1 cupful water, 1 teaspoonful soda, 2 tablespoonfuls melted lard, 1½ cupfuls wheat flour and 1 tablespoonful of molasses. By adding the melted lard the griddle does not need to be greased, there is no smoke and the cakes brown fine.

For syrup we like best this home-made one: 3 or 4 cupfuls brown sugar and just enough water to cover, boil until thick. For a change we use the commercial syrups or just milk and sugar. If I have stale bread crumbs I use half flour and half bread crumbs in place of all flour; it helps to utilize stale bread and is really superior to all flour. Another good batter is 2 cupfuls of sweet milk, 1 well beaten egg, ¼ teaspoonful salt, 1 teaspoonful of baking powder, with flour and bread crumbs to make a thin batter. To the first receipt I sometimes use half flour and half corn meal or graham flour; this makes a welcome change.

To make rice pancakes, use 1 cupful cold boiled rice, 2 cupfuls sour milk and 1 teaspoonful soda or 2 cupfuls sweet milk and 1 teaspoonful baking powder and 1 beaten egg; add flour to make right consistency and salt to taste.

These receipts have developed from my own experience, and have proved very helpful.

Mrs. J. W., Cordova, Md.—Being unable to get graham flour at the mill one day, my husband brought home some shorts or middle meal and said try it. By using half flour I made fairly good bread. One morning I baked pancakes by using one pint of butter milk, 1 teaspoonful of soda, same of salt, and used the shorts to thicken.

To make mock buckwheat pancakes, for a small family take ½ yeast cake, 1½ pints warm water, 1 teaspoonful of salt, use shorts to make batter and let stand over night. In the morning take ½ teaspoonful of soda, pour ¼ cupful of boiling water over it, stir in batter and bake on hot griddle. These can hardly be told from buckwheat cakes.

Mrs. N. L. A., Massillon, O.—There are many things one can use up in pancakes. If you have corn bread, wheat bread or biscuits, or even cake, to get stale, just soak them in some water or sour milk over night, and stir it in with your pancakes in the morning, using corn meal, flour or middlings to thicken.

Another way is, if you have rolled oats, rice or corn left over, it can be put into the pancake batter; besides making a good pancake it saves flour in thickening. Middlings can be used with the rolled oats. Sometimes I make them with middlings and flour. I always sift my middlings. To a good ½ gallon of batter I use about 3 teaspoonfuls of soda dissolved in a little warm (not hot) water and stir in last.

A good gravy is made after frying bacon, or brown some flour in meat frying and pour in sweet milk. For another gravy take 1 pint sweet cream and 5 pints water, salt and pepper and thicken with a little flour.

Here is a good syrup. Melt some sugar in an iron skillet (you will have to stir it all the time), when it is melted pour in some water. It will form in a hard cake, but let it boil until dissolved and as thick as you like it, then add a little vanilla and you have a maple syrup in taste and looks, and one that will not sugar.

Mrs. J. C. F., Bridgeton, N. J.—We are very fond of most any kind of griddle cakes, but our favorite is like my grandmother used to make—1 pint of thick clabber or butter milk, add 1 teaspoonful each of baking soda and salt; let stand a few minutes or until it foams, then add 2½ cupfuls of flour and bake. A well beaten egg will improve them.

For a syrup I take the juice left from canning fruit in summer, strain and add sugar according to how sweet the juice is, and cook down about one-half or until it makes a soft jelly. A tablespoonful of vinegar will help it to thicken without so much sugar. Put in tumblers while hot and put lids on at once. Keep on shelf where there is both light and fresh air. I never have a tumbler to mold.

Whence the Fruit to Can?

MRS. E. M. A.

I cannot contribute to the Oct. 1st Women's Exchange, because we never had so little canned stuff and so many empty cans at this time of year as we have today; but the topic suggests a variety of ideas.

We huckster on the open market at one of the largest summer resorts in the East, so naturally come in contact with producers, shippers and all kinds of green produce dealers from a radius of several miles. The market was dull this morning, so a group of us discussed the canning question. All the experiences were very similar; one woman in particular—the biggest dealer on the market—said: "Every paper talks of canning, but what on earth is any one to can? If I buy a thing to sell again I have to pay so much for it I couldn't think of canning it, and I can't raise fruit myself any such season as this is." The drought dried up the berries till we didn't have half as many as we could have used fresh and we have not had one berry pie. Some paper suggested that such things will not be as cheap next winter as they are now, but raspberries sold all the season for 18 and 19 cents per quart, and they were so scarce that if any one had bought enough to bother to cook up it would have meant that four or five of her neighbors must do without the quart or two that each would otherwise have had for table use; these people are usually pretty good natured and no one would try to corner the supply. If there just simply is not enough of a thing to go around, how is it possible to can a supply for future use? We "went after" a dealer from the peach district this morning, but he gave us the comforting assurance that there were no peaches in his territory. Several of us have cherry orchards, but the birds take every cherry, year after year, until we never have even a pie. Always in former years we have been able to fill the empty cans with apples at the last minute when nothing else has been forthcoming, but we haven't apples this year and they were even more scarce last year. This season only a few trees blossomed and it rained all through the blooming period, so that very little fruit set. We are hoping for a few pears and grapes, but some calamity will probably overtake them before they reach maturity.

Vegetables are more plentiful, though peas, squash and several others are a complete failure. Not a thing is going to waste, but many things may, far more economically, be saved for seed, instead of as we have no more than we will need for planting, and we don't care for them canned. Corn is late; possibly we can buy some after a while, but we can't even have roasting ears now, and the air feels like frost this minute (Aug. 27th). There is not a pumpkin anywhere, and we prefer onions, turnips, carrots, etc., stored in the usual way for winter. We always can young beets, but we put some in the cellar, too.

I believe these things could safely be packed for shipment, but city customers would want them for 10 cents a quart; the cans would probably cost us 11 cents, and we could contribute the fruit, sugar and labor as a patriotic duty. Last year the market was infinitely other than at present, but experienced dealers tell me it is always like this; when the cost of production is high people never are willing to pay the price—they seem not to understand that farm products cost us any more than they always did. The outlook for remunerative marketing of canned goods, with sugar at 10 cents and going higher, and with practically no cans and no fruit in the country, certainly is not encouraging at a time when consumers are objecting to prices for butter and eggs that mean starvation to producers.

New York.

[Surely conditions like this do not exist throughout the Middle Atlantic States. We will look now with a great deal of interest to the contributions for our next Women's Exchange. Let us have a lot of manuscripts.—Ed.]

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Use of Potatoes in Bread Making

The pressure of war conditions has brought to light the value of potatoes in bread making, both in England and America. As an economy in England potato flour was mixed with wheat and a peculiarly delicious bread resulted. In this country potato flour is not available to the average housewife, and the U. S. Department of Agriculture has therefore devised receipts for the making of bread with simple, plain boiled potatoes mixed with the wheat flour.

This bread is said to be not only a complete success from the economy standpoint, where potatoes are cheap and plentiful, but to supply an attractive novelty in the household menu, and a welcome variation from the usual bread monotony. It has a rich brown crust, is tender and elastic, and the flavor is preferred by many to the bread made wholly of wheat. It contains more moisture than ordinary bread, and therefore has longer keeping qualities.

STRAIGHT DOUGH METHOD.

To make four 1-pound loaves use 3 pounds boiled and peeled potatoes, 2¼ pounds bread flour, 1½ level tablespoonfuls salt, 3 level tablespoonfuls sugar, 2 cakes compressed yeast and 4 tablespoonfuls of water.

Wash thoroughly and boil in their skins about 12 potatoes of medium size. Cook them until they are very tender. Drain, peel, and mash them while hot, being careful to leave no lumps. Allow the mashed potato to cool to 86 degrees F. or until lukewarm. To 3 pounds (5 solidly packed ½-pint cupfuls) of the mashed potato, add the yeast, which has been rubbed smooth in a cup with 3 tablespoonfuls of lukewarm water. To get all the yeast, rinse the cup with the remaining tablespoonful of water and add this also to the potato. Next add the salt, the sugar and about 4 ounces of the flour (1 scant half pint of sifted flour). Mix thoroughly with the hand, but do not add any more water at this stage.

Cover the mixing bowl to avoid the formation of a crust on top and place out of the way of drafts to rise, where the temperature can not fall below 80 degrees F. or be much higher than 88 degrees F. Where the housewife has no thermometer she should see that the dough in all the risings is kept moderately warm, but not up to blood heat. Any water used in mixing the dough should be moderately warm, but by no means hot. This sponge, if kept at the proper temperature, should, after two hours, become quite light.

To this well-risen sponge, which now will be found to be quite soft, add the remainder of the flour, kneading thoroughly until a smooth and elastic dough has been formed. The dough must be very stiff, since the boiled potato contains a large amount of water which causes the dough to soften as it rises. Do not add water to the dough unless it is absolutely necessary to work in the flour. Set the dough back to rise again—temperature at about 86 degrees F.—until it has trebled in volume, which will require another hour or two. Then divide the dough into four approximately equal parts, reserving a tiny lump weighing 2 or 3 ounces for an "indicator." Shape the sample into a ball and press it into the bottom of a small tumbler with straight sides. The glass should be slightly warmed. Note the volume of the ball of dough in the tumbler and mark the glass at twice this volume.

Mold the four portions into loaves and place in greased pans which have been slightly warmed. Place the glass containing the "indicator" beside the pans and let all rise, under proper temperature, until the "indicator" shows that it has doubled in volume. Then place the loaves in the oven and bake in a good, steady heat (400 to 425 degrees F.) for 45 minutes.

Where no oven thermometer is at hand, a convenient way to test oven is to put a teaspoonful of flour in an earthen dish in the oven. If this flour becomes light brown evenly throughout in 5 minutes' time, the oven is right for bread baking. If the flour scorches in that time, the oven is too hot.

SPONGE METHOD.

To make four 1-pound loaves take 3 pounds of boiled and peeled potatoes, 2¼ pounds of good bread flour, 3 level tablespoonfuls of sugar, 1½ level tablespoonfuls of salt, 1 cake of compressed yeast and 4 tablespoonfuls of water.

Boil, peel and mash the potatoes as directed in the straight dough method. In the evening take 1½ pounds, or 2½ solidly packed half-pint cupfuls, of the cool mashed potato, add to it the salt, 4 ounces of flour (1 scant half-pint cupful) and the yeast rubbed smooth with the water, reserving one spoonful to rinse the cup.

In the morning add the remainder of the potato, the sugar and the rest of the flour. Knead thoroughly until a smooth and very stiff dough is formed. After working the dough, set it to rise according to the directions given for the second rising under the straight dough method. Thereafter handle the dough exactly in the same way as is given under the straight dough method.

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Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

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CHAPTER XXII.

EAVESDROPPING.

The winter following Joel's death was unusually severe and to Persis seemed well-nigh endless. Though Celia had escaped the attack of pneumonia anticipated by the doctor, her long hours of exposure, coupled with the shock, had told on the sensitive child, and it was months before she seemed her usual blithe, audacious self. Without question Celia sorely missed her vanished play-fellow, and Persis, who had postponed her entering school for another year, because she did not feel that the child was strong enough for the confinement of the school room, sometimes doubted her own wisdom and was half convinced that the companionship of other children and the distraction of Celia's thoughts would have proved sufficient advantage to counterbalance all drawbacks. The others of Persis' flock with occasional digressions varying in seriousness from chilblains to croup, maintained as satisfactory a health average as the mother of a young family can expect.

After the unprecedented severity of the winter the spring came early, as if nature had repented her harshness and had set herself to make amends. The sparkle came back to Celia's eyes and the lilt to her voice. The children who had been models of deportment while the cold lasted, developed a frisky unruliness, resulting in Malcolm's playing truant and Algie's coming home with a black eye, trophy of his first fight. Persis was too thankful over being able to raise every window in the house and have the sweet spring air flooding in upon her, to take these enormities very much to heart. Indeed, she was almost too busy to deal with the culprits as they deserved.

After two years in which she had hardly touched a needle, except for the children's little garments, Persis was again busy dressmaking. For she had not forgotten her promise to Diantha Sinclair, and Diantha's wedding day was approaching, simultaneously with her eighteenth birthday. Backed up by Persis, Diantha had declared her intentions and put in a plea for a church wedding. And when her mother stormed and threatened, Diantha made her defiance.

"Oh, very well, mamma. Only I'm going to be married in church. And if you won't give me a wedding, Miss Persis will."

In a frenzy Annabel appealed to her husband. Since he felt as keenly as she in the matter of what he called "Miss Dale's unwarrantable interference," their mutual indignation was actually proving a bond between that ill-mated pair. Since Persis had committed the indiscretion of reminding her of her age, Annabel had never spoken to her quondam dressmaker, and even such a crisis as the present could not bring her to the point of submitting to another interview, in which she might hear other truths equally unwelcome. It was her husband who faced the enemy.

Persis listened unperturbed while he stated his grievance. "Mr. Sinclair, if it hadn't been for me that girl of yours would have been married a year ago. It would have been a runaway match if I hadn't coaxed her into giving up and waiting until she could marry with the law to back her up in doing as she pleased. I made Diantha some promises then, and I'm going to keep 'em."

"Your conscience is too tractable, I suppose, to trouble you over setting a young girl like Diantha against her parents."

Persis regarded him with a slow smile, the significance of which Sinclair plainly had no difficulty in understanding. He flushed to the roots of his whitening hair.

"Mr. Sinclair, when a girl's happy at home, I do think it's a pity for her to jump into being a woman at eighteen. More'n one I've coaxed into waiting. But when a girl's disposition is wearing thin through bickering and nagging day in and day out, the sooner she's in a home of her own the better."

"I am glad you are ready to guarantee the success of this affair for which you are so largely responsible," remarked Mr. Sinclair. This was more of a home-thrust than he knew, but Persis did not wince.

"As for guaranteeing that anybody's going to be happy anywhere, Mr. Sinclair, only the Almighty can do that. My idea is that Diantha has a better chance with a young man who loves her than with a mother who is jealous of her and a father who hasn't got the courage to take her part."

"If you are going to fall back on villification, Miss Dale," remarked the other participant in the dialogue, plainly in a towering rage, "the sooner this interview terminates, the better."

"Well, Mr. Sinclair, I guess you're right about that. Talking things over won't convert either of us. And you understand," continued Persis, following her caller to the door, "that you're not to feel driven to give Diantha a church wedding. Only if you don't I will."

It was due to Persis' effective championship that Diantha's wedding bade fair to prove what the reporter of the Clematis Weekly News called "A social event of almost metropolitan importance." There were to be bridesmaids and ushers and a best man. Admission to the church was by card, and the ensuing reception at the home of the bride's parents was scheduled to set a new pace for Clematis society. And while Annabel, inwardly raging, struggled to put a bold face on her defeat, Persis was busy with the gown she was resolved to make her masterpiece. The children were not allowed to enter the room where the work was progressing, though they sometimes took awe-stricken peeps through the crack at the mysterious, sheet-draped object suspended from hooks, and in the twilight taking on an aspect distinctly ghostly. It was necessary, too, to carpet the floor of the workroom with sheets when Diantha had a fitting, all of which added enormously to the romance and mystic glamour inevitably connected with a wedding dress. The children, with whom Diantha had always been a prime favorite, instead of rushing tumultuously to meet her, now stood off when she presented herself, and looked her over, as if like the dress in Persis' workroom, she had become enveloped in mystery.

Mingled with the scraps of white satin which littered the floor were scraps of black silk. After the wedding-day had been fixed upon, the mother of the groom swept down upon Persis, wheedling and peremptory by turns.

"Persis Dale, I don't care if you *are* worth enough to buy and sell me twice over, you've got to make me a dress to wear to my boy's wedding. It's no use for you to shake your head. Persis, I ain't had a waist-line since you went out of business. And when I think how Annabel Sinclair's going to be rigged out, I'm worried for fear Thad will be ashamed of me. They say she's going up to the city every week for fittings, just as if she was going to be the bride 'stead of Diantha."

It was clearly reprehensible in Mrs. West after throwing herself on Persis' sympathy and carrying her point, to be late to a fitting. Persis, who planned to clear the cobwebs from her tired brain by an exhilarating spin in her car at four o'clock, had appointed two for Mrs. West to try on the black silk. By quarter past she was fidgety, and as the clock struck the half hour, she waxed indignant.

"Now, Etta West needn't think I'm going to put myself out to make her dress if she can't keep her appointments. Folks that ask favors ought to be particular not to make any more trouble than they can help."

Another ten minutes of waiting quite exhausted Persis' store of patience. She stepped into the kitchen where Mary's sister was helping Mary with the extra work due to Persis' engrossing activities.

"Keep an eye on Celia and the baby, girls. If they say they're hungry try 'em with bread and butter without any sugar. I'll probably be back before the rest get home from school, but if I'm not here, tell 'em not to go away. We'll have a good ride before supper."

The West dwelling had that look of peaceful complacency characteristic of well-ordered establishments in mid-afternoon. Persis entered by the unlocked kitchen door, carrying Mrs. West's skirt over her arm. "Mis' West," she called challengingly, "Mis' West." And then as the silence remained unbroken, she found her irritation evaporating in anxiety. Could anything be wrong? "Mis' West," she called again at the foot of the stairs, and an observer could have argued from her altered voice a corresponding psychological change.

A sound answered her, something between a grunt and a groan, and sufficient to send her scurrying up the stairs with a marked acceleration of the pulse. Her vague foreboding took shape when as she reached the upper hall, she caught sight of a prostrate figure, partially visible through a half-open door. "A stroke!" thought Persis, and the black silk slipping from her arm, dropped in an unheeded heap.

The recumbent figure did not move as Persis flew down the hall, but as she entered the room, the head stirred slightly as if to look in her direction. Persis dropped upon her knees.

"Can you understand me, Etta" she spoke with terrifying gentleness.

"Don't be a fool, Persis Dale." The vehemance of the rejoinder was startling. "Why shouldn't I understand?"

"Then it's just a fall, is it?"

Mrs. West hesitated before replying. "No," she returned in a tone of marked irritability, "I didn't fall."

"Then what's the matter?"

"I didn't say there was anything the matter, did I?" Mrs. West's ill-humor seemed to be gaining on her. "I s'pose if a body wants to lie down for a while —in her own room—after her day's work is done—her neighbors haven't any real call to make a fuss."

The amazed Persis continued in a kneeling position, her bewilderment rendering her incapable of movement.

"You mean that you're lying here—because you like it."

"On a warm day," said Mrs. West with dignity, "a floor's cooler than a bed and it saves mussing the spread."

Persis studied her thoughtfully. "I can't say you look cool, Mis' West. I guess I never saw you so fire-red as you are at this minute. But if that's your idea of having a good time, why, every one to his taste, as the old woman said when she kissed the cow."

She rose with a dignity that matched Mrs. West's own and moved toward the door. "Maybe you remember that you had an appointment for a fitting at two," she suggested coldly. "I brought your dress over, but of course if you're busy enjoying yourself—"

"Persis Dale," cried Mrs. West, her voice shaking, "I didn't think you had it in you to be so hard-hearted."

Slowly Persis retraced her steps. Her prostrate friend was weeping. Large impressive tears rolled slowly over her cheeks whose fiery hue suggested the possibility that each drop might immediately be converted into steam.

"Mis' West," began Persis in a tone of strained patience, "will you please tell me if you've taken leave of your senses or what?"

Mrs. West's tears flowed faster. Hysterical tremors agitated the recumbent mass. "I—I can't get up," she exploded at length, in seemingly reluctant confidence.

"Can't get up? But how did you get down?"

"Persis—I—I was rolling."

"Rolling!"

"To reduce, Persis. My cousin Aggie said she took off twenty pounds in ten weeks rolling half an hour a day. And I thought it was worth trying."

Persis suddenly averted her face.

"Don't laugh, Persis. It may be funny for a man to be fat, but it's a tragedy for a woman. I've been thinking how Annabel Sinclair will look at that wedding, with a figure like a girl of twenty-one, and it didn't seem as if I could stand two hundred and twenty-six. But if rolling's a cure, I guess I started too late."

"Why can't you get up, Mis' West?" inquired Persis, regarding the prostrate woman with a becomingly serious countenance. "You haven't wrenched yourself anywhere, have you?"

"Not that I know of, Persis. I didn't hear anything snap. I guess I'm stalled, like a horse. Maybe if I wasn't quite so near the couch I could manage. If Thad or his father get home before I'm up, I'll never hear the last of it."

Realizing that her friend's apprehension was well grounded, Persis brought her strong muscles and resolute will to bear upon the problem. She had lifted many a sick patient too weak to turn upon his pillow, and she knew the trick of making every ounce of energy count. Inspired by her example, Mrs. West put forth all her strength and as a result of their combined efforts she rose with ponderous slowness into a sitting position. The rest was easy. With Persis boosting and panting encouragement, the unhappy exponent of other people's theories regained her feet and tottered to a chair.

"Goodness, gracious, Persis, I'm as limp as a wash-rag. No more rolling for me, not if I get up to three hundred pounds." She looked at her friend appealingly. "Don't ask me to stand up and be fitted, Persis. There's no more starch in my knees than if they were pieces of string."

Persis made haste to disclaim any such intention. "What you want is a fan, Mis' West, and a cup of tea, to quiet your nerves down. You've got to get braced up before Mr. West comes in, or he'll be at you to find out what the trouble is. And when a man gets a little joke like this on his wife, he's bound to make it last the rest of his natural life."

Leaving her friend to compose herself, Persis hurried to the kitchen and brewed the restorative cup of tea she had recommended. As she carried it to her patient the telephone lifted up its voice.

Mrs. West counted the rings. "One, two, three, four. That's Nellie Gibson's call, Persis. I wish you'd listen and see if you can find out if Josephine Newhall has got there yet. Nellie's been talking of that visit all winter."

Persis complied unhesitatingly. In Clematis no kill-joy had arisen to question the propriety of listening to the conversation of the other subscribers to a party line. It was the universal understanding that one of the foremost if not the chief advantage in having a telephone, was the gratification to be derived from overhearing the confidences of one's neighbors. To have denominated this eavesdropping, would have aroused general indignation.

Persis took down the telephone without a qualm and instantly recognized the high-pitched voice of Mrs. Gibson, Thomas Hardin's sister. She was speaking more loudly than necessary in such conversation and with a seeming lack of amiability.

"Well if you won't come to supper tonight, when will you come? Set a time right now."

"Really I don't know, Nellie." Persis started as the gentle deprecating tones reached her ears. "I'm pretty busy at this season. I guess I hadn't better say—"

"Fiddlesticks and folderol! I know just how busy you are. I guess if Persis Dale hadn't thrown you over like a worn-out shoe, you'd have found time enough to go over to see her every blessed night of the world."

It was clearly the moment for Persis to hang up the receiver. Regrettable as it is to record, she listened with a seeming accession of interest for Thomas' reply. But his only answer was a discreet silence.

"When you talk of being busy," Mrs. Gibson continued witheringly, "I know what's in your mind. You mean you won't come to this house while Josephine is here."

Still silence on the part of Thomas.

"Thomas Hardin," his sister burst out, "why don't you say something? I can stand a man that takes the roof off when he's mad lots better than the kind that shut up like clams. Are you coming to supper this week or not?"

"No, Nellie, I guess not."

"You mean you're not coming near the house while Josephine stays? Be a man. Speak out plain."

"Nellie," said the goaded Thomas, acting on her counsel, "I haven't a thing to say against any friend of yours, but I'm tired of your match-making."

"Match-making!" Mrs. Gibson repeated, like most who adopt that most thankless of the professions, ready on the instant to repudiate it. "Me!"

"Yes, Nellie, I'm not a suspicious man, but a child in arms could see through your little game. I dare say you mean it kindly, but when a man's not looking for a wife, it's embarrassing to have first one woman and then another thrown at his head."

"I suppose," commented Mrs. Gibson acridly, "you'd rather end up your days a pitiable old bachelor, mooning over the woman who played with you for a dozen years and threw you down at last."

"If she threw me down, 'twas because I deserved it."

(Continued on page 327)

The Practical Farmer Live Stock *and* Dairy Section

My Kingdom for a Horse!

O. B. MESSICK

Will some such appeal go out from this country? And by "horse" I do not mean the weak, thin, scrawny beast that can scarcely pull its own weight, nor the mongrel, off-type mare that produces a nondescript colt. We have enough of that kind now. What I do mean is the high-class, meritorious individual that can get up and go; the kind that pulls and is always ready and willing to work.

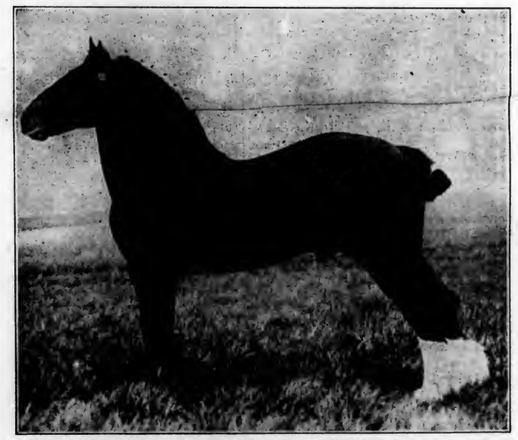
Never before in our history has there been such agitation for preparedness, increasing food production, conserving of resources, the stopping of waste and the cultivation of more acreage, yet in all this campaign there has been comparatively little appearing in our farm papers and agricultural journals regarding the condition of the country's supply of horses. Note that I say "condition," because if the figures issued by the Federal Government are reliable, there is no question as to the "quantity" of horses. The report states there were on the farms of the country, January 1, 1917, about 21,000,000 horses and 4,600,000 mules, making a grand total of almost 26,000,000. The report also shows that the average value per head of horses on that date was less, with one exception, than at any similar period since 1910, and that of mules was less, with two exceptions. But whether at peace or war, for agricultural, commercial or military uses, these figures do not mean there are that many animals in the country fit to fill all these requirements.

In the past two and one-half years it is said we have sent to Europe more than 1,000,000 horses and mules. The quality of these has not been, from all accounts, much better than medium or fair, but, on the other hand, are said to be composed principally of common individuals for which there was no market here. If this is true, then it is indeed a case of "good riddance of bad rubbish." Their exit has had no effect whatever on the horse market. Now if these more than a million animals are of the class we have been led to believe, it is apparent that horse breeding in this country has not been conducted on proper lines. This being true, should we not then devote a portion of our energies to the production of horses of better quality?

The statement has appeared somewhere that the United States is producing each year more than a million colts, but evidence is lacking that they are going to prove any better in quality than those we have been raising in the past. The quality of those that have been exported is pretty good evidence that many of our breeders are either ignorant of the principles governing breeding or else they have failed to apply them. Their only object, apparently, has been to "get a colt."

Of course, there are always exceptions. A number of instances might be cited where farmers and breeders have organized for the purpose of improving the horse stock in their particular communities. Tazewell Co., Illinois, has become noted for the good horses its farmers are producing. Another case is that of the farmers of Delaware Co., Ohio. In a pamphlet issued by the latter association it is stated that the association is composed of about ninety breeders, representing the ownership of approximately seven hundred pure-bred Percheron horses. While the breeders have extreme confidence in their ability to produce high-class American-bred animals, neither time nor money have been spared in bringing up the standard of their breeding stock when imported stallions and mares of superior merit could be procured.

A mare owned by one of the association members has been used in a team at farm work since she was three years of age. As a side issue, commencing at four years, she has produced nine living foals which brought her owner $5220, a two and a half year old stallion bringing $1000, and the lowest price being $145 for a 6-months-old colt and this during a business depression.



Fairbairn's Messenger 15816, Head of Clydesdale Stud at Pennsylvania State College

These are representative of scattered instances, but as a general proposition the breeders of the country have not been so wide-awake. There is, of course, the probability that the arguments presented in favor of the tractor have "thrown a scare" into the horse camp and that breeders generally have loafed on the job. We all know that, periodically, the demise of Old Dobbin has been forecast and his funeral sermon preached in advance, but he is still with us and he is going to stay!

I do not mean to belittle the tractor. It has its field, yet so little has been said in contradiction of the feeling inspired by its promoters, that the horse is doomed, that many farmers have become careless, or lost interest, and are satisfied, apparently, with the misfit colts that their old mare Maud has foaled by neighbor Jones's cross-bred stallion Big Dick. And right here we strike the underlying cause for the general lack of quality in our horses; there are too many old Mauds in the country being bred to scrub stallions.

The excuse is often given that there is no good pure-bred stallion in the vicinity, but there is a grade that is standing for around $10. It does not take an expert to figure out that the colt from a cheap sire will bring a low price; one that will not begin to pay for the feed it eats and the care it requires. If there is no good stallion in the community, it will pay to take the mares to a sound pure-bred stallion, even if it is some distance away and its owner charges a fee of $25; or, on the other hand, breeders can club together and afford to pay at least half the freight charges to have a good, sound, pure-bred sire brought into their community, keeping always in mind that the thing to be accomplished is the production of better horses. The expense in rearing a good animal is no more than that of raising a scrub, and in addition to producing good animals the colts sired by the pure-bred stallion will bring a handsome profit. When a breeder patronizes the pure-bred sire he is doing "his bit" to place his country in a position to take good care of all the problems and to do the work where efficient horse-power is necessary.

Where possible, there should be from four to six high-class mares on every farm and they should be bred to a pure-bred stallion. The production of good horses produces the power necessary to the proper cultivation of every available acre, a thing our government has asked every farmer to do that we might be in a position to feed our own population first and to take care of the needs along this line of our allies. "Flivver" horses will not do for this work. They can't stand the strain nor exert the pull, neither can they produce good enough colts to maintain the supply. Scrub horses are a dead weight to agricultural progress and when there is no progress in agriculture then national prosperity lags.

It is a hard thing to conceive of any intelligent farmer raising high-class cattle, sheep and hogs and at the same time letting his horse stock "run down at the heel." Farmers should realize now, as never before, that good horses will always be in demand, and, when it is again time to breed mares, make the final decision that they will patronize the pure-bred stallion.

Ohio.

Getting the Most Out of a Separator

IDA E. BLOYE.

If the cream separator is to last long and do good service, much will depend on the care it receives. The bolts should be kept tightened so there is no friction; it should be well oiled, and wiped off clean each time after the milk is run through. Too many do not give it the right attention, are not thorough in washing it, do not remove every particle of milk and dirt, are not particular to keep the bolts tight, and then wonder why their cream separators wear out so soon. Any machine will not wear as long as it should, unless given proper care. To give the cream separator the best of care, as well as have the best quality of cream and make the best grade of butter, it is best to have a room made expressly for the separator, where it can be kept perfectly sanitary, and thus keep any odor from tainting the cream.

Keeping a large dairy and making butter as we do, we soon found we needed such a room and built one, which we consider quite a model for convenience and sanitation. A room 10 feet square is about right for size. We finished ours off in the northeast part of the basement of the barn. The floor is made of concrete, one part cement to six parts gravel. A platform is made along one side to walk on, which brings one high enough to see into the tank, as the main floor, on which the separator stands, is six inches lower than the platform, and slopes down two inches lower still at the drain. The drain is a 2-inch pipe with an elbow at the end that comes level with the surface of the main floor. Where the separator stands bolts are set in the concrete and burrs turned on, then the legs set over the bolts and more burrs turned on. The burrs screwing up or down, will adjust the separator so as to keep it level, which is very essential if it lasts long and keeps its balance.

Alongside the separator on the east side of the room is a window 2x4 feet; under this are two shelves, one higher than the other, which should be built in height to suit the separator, just right to set milk or cream pails on under the spouts. The lower shelf is of plank 18 inches wide and is as long as the room; the upper one is of board, the same width, and long enough to set two pails on. It is fastened to the wall with two hinges; when not in use it is turned against the wall and secured with a small hook. The ceiling and sides of the room are of Georgia pine. The whole room can be scrubbed clean with very little trouble, as the drain carries off all the dirty water. We consider it a money, as well as a labor, saver.

New York.

Dairy Ideas From Various Sources

Dairy cows have, without doubt, been the means of restoring fertility to more farms than any other class of live stock. The sale of their products has removed so little and the enforced purchase of mill feeds has added so much that wherever we find a typical dairy country we find a prosperous and progressive people. There is a good demand today at advanced prices for all kinds of dairy products, and Eastern dairymen can well afford to give serious thought to the great problem of supplying our cities with the wholesome food which the dairy cow supplies. For a long time the various agricultural experiment stations have been devoting their attention to the best ways and means of handling all branches of the dairy industry and there is no reason why any one should try to combat problems which have been already solved when the results are offered to all who care to apply for them. This year, because of abnormal conditions existing throughout the world, some producers have become discouraged and looked for other ways to dispose of their raw farm materials. The dairy cow still stands, however, as the champion machine for turning out the finished product, and those who have stuck to her through lean and fat years have no excuses to make or cause for regrets.

RELATION OF ROUGHAGE AND GRAIN FEED.

In feeding cows this year dairymen must face two very difficult problems, viz., the question of labor and the cost of the grain mixture, according to the Dairy Husbandry Department of The Pennsylvania State College.

Pennsylvania buys outside her own borders, quantities of grain feeds for dairy cows. The possibilities of a decrease in the available supply of these by-products, increased shipping difficulties and even a higher price of grain than the present makes it important to plan for reducing the purchased feeds to a minimum. The decrease in amounts of grain feeds given can be made up partly by increasing the amount of roughage and by a selected combination of roughages.

There are three possible combinations of roughage for the dairy sections of Pennsylvania, namely, corn silage and alfalfa hay, corn silage and clover hay, corn silage and timothy hay. However, in many sections corn stover is used in place of corn silage. It seems important at this time to plan for a silo next fall.

For practical purposes a balanced ration for an average cow giving 15 to 18 pounds of milk is about 14 pounds of alfalfa hay and 35 pounds of corn silage. The cow will consume this amount if given an extra feed of each of the roughages mentioned. No grain is necessary for this production. It is necessary, however, to feed a small amount of grain to a cow producing 18 pounds of milk or more.

When silage and clover hay are fed to an average cow giving 15 to 18 pounds of milk daily, one pound of cotton seed meal or its equivalent in protein content should be fed on the silage.

An average cow can consume only about enough silage and timothy hay for protein body maintenance. To produce from 15 to 18 pounds of milk she must be fed two pounds of cotton seed meal or its protein equivalent on the silage.

An average cow producing over 18 pounds of milk daily must be fed additional grain. The amount of grain will depend upon the amount of milk, the price of grain and the selling price of milk. Even if grain is high it should be fed as long as the increase in the milk will pay a profit on the grain fed. Under no circumstances can the dairy farmer afford to feed grain today without weighing both the grain and milk.

PREVENTING HORNS ON CALVES.

Possibly when cows ran wild horns were a necessity to them as a means of defense. There is hardly a dairyman today, however, who does not know to his sorrow what injury horns can do. This difficulty can be overcome by removing the horns on calves by an application of caustic potash, as is done at the Ohio Experiment Station. When the calf is two or three days old, clip the hair from the spot where the horn buttons protrude. Moisten the end of a wrapped stick of caustic potash and rub on the horn. Care should be taken to see that all of the horn is removed in order to prevent the growth of spurs. The calf should not be turned out into the rain immediately after the operation, as the caustic preparation may wash down into the eyes and injure them. Caustic potash should be kept in an air-tight container or it will absorb water and dissolve.

A COMMON PREVENTABLE LOSS.

As the time for staoling the cows is approaching, thought should be given to the condition of the barn and if not already in use a concrete floor or gutter should be installed. It is estimated that there is a loss of fertilizing value of manure on the farms of this country amounting to from 50 million to 100 million dollars a year. Three-fourths of this loss is preventable, and with fertilizer prices at their present high level, a word as to this loss is opportune.

The extension specialist in agronomy and soil fertility of the New Jersey State Agricultural College points out that 10 cows in 30 days will make approximately 10 tons of manure, 30 per cent. liquid and 70 per cent. solid. If three-fourths of the liquid is allowed to run off, 40 pounds of nitrogen and 54 pounds of potash are wasted, while the losses from the remainder if exposed to the weather three months are approximately 34 pounds of nitrogen, 8 of phosphoric acid and 20 of potash. At the present price for soluble nitrogen and phosphoric acid in fertilizers, and at 10 cents a pound for potash, the total loss would amount to $22.71. There would be left only 32 pounds of nitrogen, 20 pounds of phosphoric acid and 20 pounds of potash. As these residues are much less soluble they have only about half the fertilizing value of what has been leached out, and their value is estimated at $5.65, or a trifle less than one-fourth the value of what is wasted. There is also a loss of about one-third of the total dry or organic matter when manure is exposed to the weather for several months.

USE TESTED SIRES.

The value of the tested sire has been illustrated by the University of Missouri College of Agriculture. Sultana's Virginia Lad was selected as the herd sire at the age of five years on account of the excellent milking qualities of his daughters, although none of them had ever been tested for Register of Merit at the time he was purchased. The first five daughters of this bull to freshen in the University of Missouri herd have an average production of 9000.3 pounds of milk and 511.03 pounds of fat as 2-year-olds. This is an average per cent. increase of 76.6 in milk and 86.3 in fat over the average production of the first lactation of their dams.

Two of these daughters have dropped the second calf and have started their lactation period by producing 1416 pounds of milk containing 87.28 pounds of fat and 1284 pounds of milk containing 82.32 pounds of fat respectively during the first month. The production of 87.28 pounds of fat in one month is the record of the herd for that length of time. These figures show that the sire may be even more than half the herd.

The use of the tested sire has been emphasized all the more by present high feed prices. The offspring of the tested sire will usually feed more economically and produce more than those of the scrub sire.

OVERCOMING SUCKING HABITS.

This is the time of year, according to the Dairy Husbandry Department of the Pennsylvania State College, when heifers will frequently be found sucking other heifers or cows. This habit will grow with the shortage in the pasture grass. Heifers or cows will be injured by this vicious practice. Every dairyman who has not already spent some time observing the condition of the udders of animals on pasture should do so now. If signs of sucking are observed, the herd should be watched until the offending animals are discovered. Some animals may be sucking themselves.

A simple and satisfactory method of preventing an animal from sucking itself or other animals is to insert through the nose of the sucking cow a ring such as is used for ringing bulls, with another ring attached to it. The latter ring may be of any convenient size. This device needs no attention. It does not prevent the animal from eating, but it does interfere with her attempts to suck.

Many other devices are on the market or may be found in use in different sections of the state. Many of these are good. The essential thing is to stop the practice before the heifer's or cow's udder is injured.

Organization Puts New Life in Dairying

(Continued from page 213)

the new charter should be obtained. The directors select from their number a president, a vice-president, an executive committee of five, and also elect a secretary and a treasurer, who need not be members of the board. These two are bonded to an amount satisfactory to the board. Stockholders are entitled to one vote for each share of stock and a fractional vote for each fractional share. Five per cent. of the outstanding stock represented in person or by proxy is necessary for a quorum.

Stock is issued to any person, firm, partnership or association engaged in milk production and is sold on the basis of 1-10 share for each cow. The par value of the stock is $2.50, so the charge per cow is 25 cents. For instance, if a man owns 10 cows he is charged $2.50 and receives 1 share of stock; if he owns 16 cows then he pays $4 and receives 1.6 shares, etc. Any producer may subscribe to more than the amount necessary on this basis but he cannot hold more than 15 shares unless he has more than 150 cows. Anyone who is not a milk producer may acquire stock (not more than 15 shares) and so assist in the movement by satisfying the directors through the local officers that his interests are identical with milk producers. The shares of the capital stock are fully paid up and are therefore non-assessible.

Stockholders in any convenient district may form local branches to represent the directors in local matters. They elect officers and adopt by-laws or rules for their direction, being careful that these do not violate the by-laws of the parent organization. The agreement between the association and the stockholder is similar to the one used so successfully by the Dairymen's League and is the vital part of the organization. It enables the producer to sell his milk as usual to his regular dealer as long as the price paid is satisfactory and gives him selling power equal to the buying power of the distributor. The association is interested in the general improvement of the dairy industry, in securing satisfactory legislation and stands ready to help its stockholders in every way. There are no annual dues payable to the association.

One of the latest counties to receive the benefits of our organization was Cumberland Co., Pa. Considering the fact that from 30 to 40 tons of milk are shipped out of this territory a day, a mere increase of 50 cents more per hundred pounds over the price which they were formerly receiving means to the dairymen from $100,000 to $150,000 a year additional. Dr. J. A. Rosenberger held a series of meetings at each Philadelphia shipping point in this county

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and aroused such enthusiasm that a number of overflow meetings had to be held. The dealers in that county had the dairymen under their thumbs, as they had in many others and still have in some others. Things have changed now, however, and the dairymen in this fertile limestone valley 40 miles long and from 10 to 15 miles wide, lying directly west of Harrisburg, Pa., are receiving a great deal of satisfaction in knowing that they have something to say regarding the price which they will receive for their products.

Influencing Sheep Profits

Sheep profits depend on the number of lambs raised and the amount of wool shorn.

During the past year many farmers have invested in small flocks of sheep. It is highly important that they maintain these flocks at a profit. Even with the present high price of wool the flock will not be profitable unless lambs are raised.

Mating of ewes, feeding and exercising of ewes before and after lambing, saving the lambs at lambing time and raising and selling lambs to the best advantage are important factors in sheep raising.

Ewes should be in the best possible breeding condition at the mating season. Spring lambs should be weaned six or eight weeks before ewes are bred again in order that the ewes may have a short period of rest. Ewes are prepared for breeding by "flushing" them, which consists in putting them in good physical condition by special feeding.

Second growth clover, alfalfa or any given forage may be used for this purpose. They should be fed as a supplement to ordinary pasture. To obviate the danger of bloat, ewes should not be allowed to consume this forage in too large quantities, or when it is wet, cautions B. O. Severson, of The Pennsylvania State College School of Agriculture and Experiment Station. If green forage is not available, a grain mixture composed of equal parts of oats, wheat bran and oil meal may be fed, at the rate of ¼ to ½ pound per ewe daily.

This method of feeding should be continued two or three weeks after the ram has been turned with the ewes. When ewes are handled in this way lambs will come more nearly at the same time, a higher percentage of lambs will be dropped, stronger lambs produced and the ewes will enter winter quarters in better condition, thus necessitating less grain before lambing.

Ewe Lambs for the Beginner

Good breeding ewes are selling high. Lower prices are unlikely, as the demand is strong and the available supply is small. With probable high prices for mutton and wool in the future, the farmer who understands sheep and will properly care for them from the start has good prospects of success.

For those inexperienced in sheep raising, particularly, there are several important advantages in purchasing ewe lambs instead of mature breeding ewes, according to the United States Department of Agriculture. In the first place, the ewes of breeding age that are offered for sale are mostly Western ewes with a long wool cross, while the ewe lambs coming from the West are mostly blackfaced, thus showing a cross of some of the down breeds, which is the kind of blood most farmers wish to have in their flocks. By buying such ewe lambs one gets the advantage of starting with the first cross of the type to be used in grading up of a flock to the mutton type.

While breeding stock is selling high, the ewe lambs can be bought at about $5 per head less than breeding ewes. This is an important point in starting a flock, although until the lambs come to a breeding age no returns from the flock will be forthcoming except the wool clip. However, for the beginner in sheep husbandry, no better plan of obtaining experience could be adopted than in caring for a flock of ewe lambs for a year. The experience gained in wintering ewe lambs and managing the flock throughout the summer season would be invaluable.

Investment in a flock of ewe lambs will give the advantage of the first cross of blood of the down breeds, lower price, and necessary experience. The wool clip, which will at least offset the first year's keep, and the yearling ewes will be a benefit to weedy pastures next spring if moved frequently and not stocked so heavily as to eat the grass into the ground.

Fattening Market Pigs

Everything considered, corn is usually the best all-around hog feed. However, the extremely high price for which corn is now selling encourages a search for substitutes. Considerable experimental data show that rye when ground has a feeding value for pigs approaching somewhere near that of corn, though ordinarily the fact that rye out-sells corn pound per pound gives corn a preference in the swine ration.

Giving the Boys and Girls an Early Knowledge of Purebred Livestock Has Been One of the Aims of the Washington Co. (Pennsylvania) Farm Bureau. This Shows a Group at the County Fair Judging Horses

Rye, if fed in excessive amounts with only wheat middlings or oil meal as a supplement, has given indigestion in some instances. However, where a good grade of tankage is fed in connection with the rye, no trouble of this kind is encountered. Tankage apparently has what the ground rye and wheat middlings are lacking in. The following grain mixture is recommended by the animal husbandry department of the New Jersey Agricultural Experiment Station, for growing fattening shoats in dry lot: Ground rye, 100 lbs.; wheat middlings or red dog, 50 lbs.; digester tankage, 10 lbs.. Feed in a self feeder, allowing free choice to the animals.

This mixture may be fed by hand as a slop also. Feed twice a day, allowing as much as the animals will clean up with relish. If the pigs are on pasture, the amount of tankage may be cut in half.

Advanced Registry Testing

Before dairymen can obtain any great degree of success from raising pure-bred cattle, they must possess some official or advanced registry records. Such records involve an accurate register of the milk and butter-fat production of pure-bred dairy cows. They are made under the direct supervision of a representative from a state agricultural college. The results of these tests are reported in detail to the dairy cattle breeders' associations, who in turn publish them.

These authentic records published by the breed associations are a guarantee to the public of the ability of the cows tested, and they give an exact basis for breeding operations.

Such tests are made in connection with each of the five dairy breed associations, in accordance with strict rules laid down by these associations. A flat rate which just covers the traveling expenses and salaries of the supervisors is charged.

FEEDING AND PREPARING COWS.

The feed and preparation of a cow for advanced registry testing, advises G. S. Bulkley, of the dairy husbandry department of the Pennsylvania State College, are very important. She should be allowed to go dry six to twelve weeks prior to calving. Immediately after she has been dried off her grain ration should be increased as rapidly as possible until she is receiving all the feed she can consume. The grain should contain a fair proportion of protein and be especially rich in corn or hominy, either of which is fattening. A comparatively fat cow will produce during the first few weeks of lactation more and richer milk than one not in good condition.

Just before calving the ration should be reduced to three or four pounds of some cooling, laxative feed like bran, oil meal or oats. On the day of calving luke-warm water, some good hay and a small amount of oats or bran mash should constitute the ration. After calving, these grains should be gradually replaced by the regular grain mixture, the composition of which should be determined largely by the taste of the individual animal. Palatable feeds insure quantity and quality of milk production. The best feeders advise starting to feed this ration in small quantities three to five days after calving and increasing the amount slightly at each feeding, the quantity depending on the animal's condition. The increase should not exceed one pound a day.

Heavily fed cows should receive considerable succulent feed, such as beets, even in addition to silage. Beets are often fed in amounts up to ninety pounds daily. Moistened beet pulp is a good substitute.

To arrange for advanced registry tests a breeder should apply to his particular breed association and to the dairy department of his state college.

Queries Answered

Buckwheat Hay. — R. E. C., Virginia, writes: "We had rain all July, so could not seed buckwheat until 1st to 10th of August. Now we are having it very dry and I am afraid I will get very little from what I have sown. Please advise me whether buckwheat will mature when planted this late. Also will it make hay that is any good if cut at proper time, and when is that time?"

Buckwheat is not often cut for hay. In fact the stems are so soft and succulent before maturing that the hay would amount to very little. I believe that the buckwheat will mature in your section if frost holds off until the regular time. The buckwheat is of some value as a feed, but I should not attempt to cut it before it has matured, as the quality of the hay would not be very satisfactory.

A. E. G.

Other People's Business

(Continued from page 324)

"Deserve nothing. You haven't the sense to go in when it rains, Thomas Hardin, and a wee-old kitten would beat you for gumption. But for all that, you're a long sight more of a catch than most men."

This impassioned tribute apparently left Thomas dumb. Mrs. Gibson followed up her advantage.

"I suppose you'd rather set in meeting and look at the back of Persis Dale's bonnet than to have a nice wife of your own in the pew beside you.

"Well, since you asked me, Nellie, I would."

"She's made you a laughing-stock. She don't care any more for you—"

"Of course she don't. Why should she? A woman like her."

"Then I wash my hands of you." Mrs. Gibson's voice suggested tears.

"Thank you, Nellie," Thomas returned gratefully, and his sister's receiver slammed into the hook. Thomas followed suit, and last of all, Persis Dale, after assuring herself that she was not likely to hear more, returned the receiver to its place and went to satisfy her friend's curiosity.

"Well?" Mrs. West had emptied her teacup and the soothing effects of the potion showed in her altered voice.

"Yes, Josephine's there," Persis replied to the elliptical inquiry. "But I gathered from something that was let drop that maybe she wouldn't stay long. So if you want a visit with her you'd better not waste any time."

(*Continued next issue.*)

The Pennsylvania Bureau of Statistics estimates that there are 24,000 silos in that state and the average capacity of each is 65 tons.

CATTLE.

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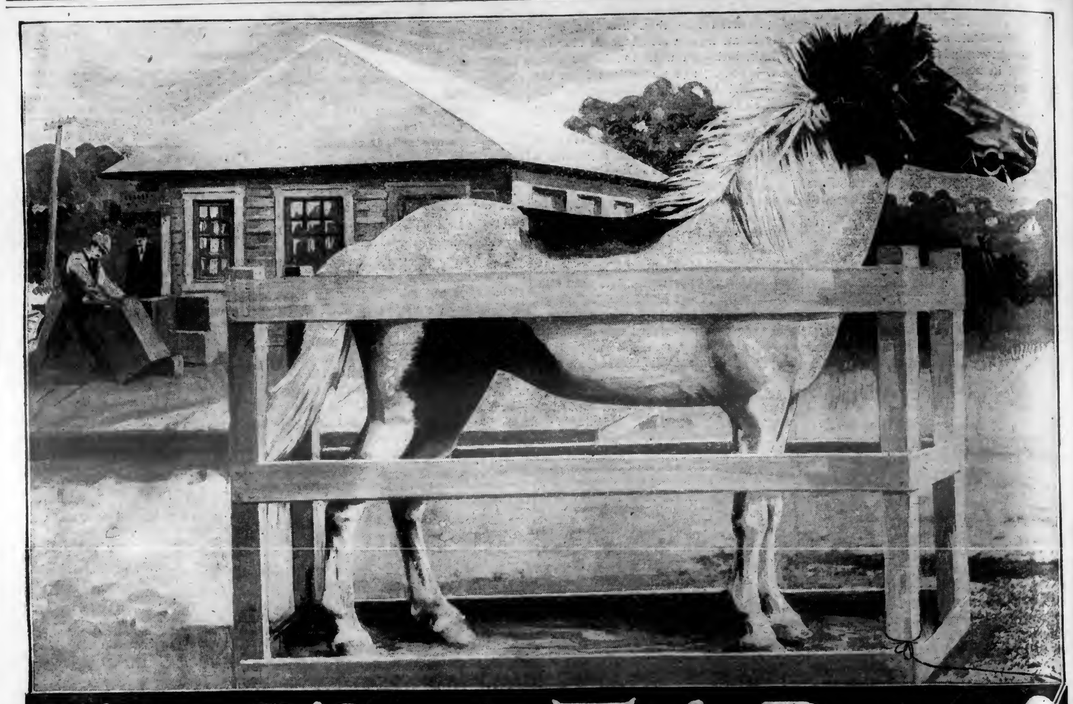

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I am called the Pony King of America because I give Ponies away to Boys and Girls. I have given away 450 Shetland Ponies to 450 Boys and Girls—all over the United States.

Now I am going to give away five more Ponies, and I want every Boy or Girl who sees this paper to stand the same chance.

If you are a Boy or Girl send me your name right away. If you are the Father or Mother of a Boy or Girl, send in your Child's name. I will enter the name in my big Free-for-all Pony Club that starts right away.

No matter where you live, no matter how young, every child will stand the same good chance to get a Pony, with Buggy, Harness, Saddle, Bridle and Blanket. Be sure to send in your name right now.

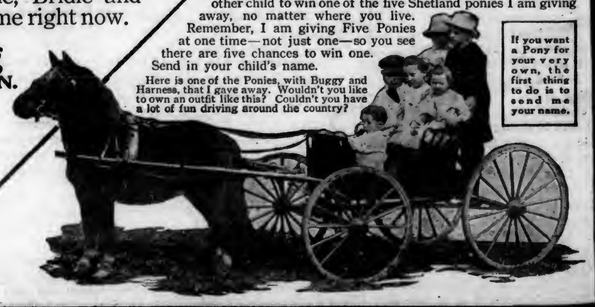
The Pony King
604 Webb Building, ST. PAUL, MINN.

Pony Pictures FREE

Children Be sure to take this chance to get a Pony. Don't wait. Write your name and address in the corner below, cut it out and send it to me. I will then send you the Colored Pony Picture Circular free and you will have an equal chance to get one of the Real Live Ponies I am going to give away soon. You stand just the same chance as any other child and it doesn't cost you a cent. Get your pencil and write your name now.

Parents Please show this free offer to your child and send in the coupon. You will be interested in the Pony Circular I send and your child will enjoy it. He or she stands the same good chance as any other child to win one of the five Shetland ponies I am giving away, no matter where you live. Remember, I am giving Five Ponies at one time—not just one—so you see there are five chances to win one. Send in your child's name.

Here is one of the Ponies, with Buggy and Harness, that I gave away. Wouldn't you like to own an outfit like this? Couldn't you have a lot of fun driving around the country?



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P. O...... *Age*.....

State..... *R. F. D.*.....

State Experiment Sta x

The Practical Farmer

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Speeding Up Farm Poultry for Best Results

By F. V. L. TURNER

WHY is farm poultry less productive than poultry on commercial poultry plants? The answer lies in the method rather than in environment or in difference between two conditions obtaining in one pursuit. Farm poultry is minimized in result through lack of corresponding attention as given to other farm animals; the same care and attention, treatment and creation of conditions of cultural effort devoted to farm poultry will (and the statement is made without fear of contradiction based on actual facts) double its output in salable product the first year, be this product fowl meat or eggs. There is no more business sagacity in holding a flock of hens that produce at the highest five dozen eggs a year each than there is in holding on to a cow that gives five quarts of milk a day. Both are a financial drag on the farm's income; both can be transformed into better producers through sale, and the purchase of better stock. In the case of hens, method is a greater result getter than is feed in the case of a low-producing cow; non-layers can be taken from a flock of hens without decreasing the output, while the feed bill is correspondingly reduced. The farm hen usually gets by without any record whatsoever reaching her owner.

For the sake of argument let us assume that the farmer reached the conclusion that an incubator was necessary to big profits—that one was installed last spring and that the pullets, hatched on time to mature as egg layers in October and November, are about ready for winter conditions; are conditions just what are necessary to fall, winter, spring and year-around production?

Housing the pullet, putting her in quarters that will promote egg laying, is a short distance from the old range-at-will method which is responsible for the 20 cents per dozen summer egg—so short that the difference between the two is covered by an investment that is usually wiped out in the first and second years. Housing means nothing more nor less than suitable enclosures, arranged for the circulation of fresh air without drafts—a scheme of food conservation whereby the feedstuffs consumed by the hen are converted more into eggs than into heat units to maintain life.

Statistics prove that 200 hens on 100 acres of an average farm are profitable while producing 20-cent eggs at the average rate of 60 eggs per hen per year—practice proves beyond doubt that 400 hens, on 100 or less acres, under restricted range and well fed, will produce 120 to 140 eggs each in a year, the bulk of the eggs so produced returning 40 cents a dozen to owners. *It is the fall and winter laying pullet that pays the big profits.*

Pullets that mature late are culls in the true sense; the January laying pullet, no matter when hatched, is never as profitable by 50 per cent. as the early layer. On the other hand, birds maturing too early, August, September and sometimes in early October, molt, cease laying in the high price season and entail loss. The fall layer is the offspring of a hen capable of paying her way, possessing the power to reproduce her kind, not slow maturers nor poor layers.

On lots of farms the poultry income could be profitably increased each year by the raising of a few geese. They will convert many waste products into meat and feathers.

From now until November first and fifteenth much can be done to hurry along maturity so that housing time will find a laying flock. Restrict the range—feed all the moist mash the young pullets will eat in the morning in about twenty to thirty minutes, and a plentiful supply of cracked grain in the afternoon. Dry mash hoppers open all day will give the finish desired. Green food of some kind will aid digestion, but it is not wise to feed such a quantity as will destroy appetite for the growing-maturing ration.

In speaking of housing there is no intention to cover the crime of permitting the farm flock to find a shelter for the night against harm or for comfort; for every dollar invested in housing the return is many times greater; for every hen roosting on a wagon wheel or plow handle the poultry owner loses a high percentage of farm income. Housed birds, to produce profit, require such feedstuffs as will maintain the body while the proper portion of the ration is converted into the egg, therefore the ration is composed of egg making as well as bone and flesh making foods. Green food forms no small part of the laying hen's diet—rutabaga turnips, mangel wurzel beets, carrots or alfalfa and clover hay are excellent correctives. Some fibrous material, waste, is needed in the care of housed birds, though enough for this purpose only should be allowed the layers. Too great a bulk of waste lessens the appetite for egg making materials and decreases the size of the egg, as well as the number which can be laid.

Water forms 60 per cent. of the egg—the water question is more or less of a bugbear. The hen requires access to water more frequently than larger animals; ordinarily the farm hen gets a drink where the stock is watered except in freezing weather; snow, then, is the water supply of the average farm hen. Simple flared pans, filled twice daily in winter, involves very much less work than is ordinarily considered necessary.

To add to the hen's comfort in ways that involve little or no expense means more eggs and more profit; litter is one of the necessities while constituting a comfort. In the New England States leaves are used for litter to a wide extent. Wheat straw, abundant in some localities, is a fair grade of litter, better than leaves and possibly of a higher manurial value. At any rate, any way it is worked out, the labor necessary to gather leaves in the fall is slight compared to the return in eggs and the cost of straw, that in many cases goes to waste, is less by many per cent. than the increased egg yield.

Clean nests, kept filled with straw or leaves, are not a refinement—they are insurance against broken eggs, soiled eggs, and therefore they are profitable. One of the large egg collectors for storage purposes, operating in Philadelphia, secures his supply of eggs from Michigan. District collectors working in that state for this storage operator conducted for years an educational campaign for clean nests, first; better conditions in general, second, and specific uplift efforts whenever the producer was hard-headed enough to insist upon wagon-wheel roosts under a drafty machine

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New Fields for Old

R. B. RUSHING

THE past season of early wet weather and later dry weather, has been ideal for bringing out the inadequacy of our ditching systems. People usually live about up to their knowledge of things. Improvements only come when the necessity for, or the importance of, the improvement is borne in upon them. Almost all of the instructions given in our farmers' institutes and other sources of information have been devoted to the methods by which drainage systems are to be installed. To me, as a user of tile drains, by far the most important consideration is to understand the full benefits to be derived and when these are understood the rest will come easy. We do most willingly and intelligently the things the importance of which we understand.

The most important benefits to be derived from a complete system of drainage, as also the most apparent, is the lengthening of the season. This is accomplished first by enabling the farmer to get into his fields to plow and to plant earlier. We all should recognize that the longer the growing season the larger crops of anything it is possible to produce. The tremendous yields reported in some of our Southern States are due to good conditions of soil and a long growing season. All experienced corn growers have found that the early corn is usually by far the most productive, and the quality infinitely superior, and hence any man, in the spring, who is kept out of his field by the reason of bad drainage, is living much behind his opportunity. The sunshine over his fields could much more advantageously be used in warming up the soil than in licking up the excessive moisture which is delaying him in his work. Also this same evaporation, made necessary by poor drainage, shortens the season because the very process of evaporation is a cooling one. Drainage must be accomplished that the least amount of water be removed by evaporation. Corn is a semi-tropical plant and we must do what we can to bring about suitable conditions.

The season is lengthened by giving off of latent heat in the rain water that is allowed to enter the soil, and then flow off as soil water. Where a soil is water-logged and this water run off, no such advantage accrues. Just how much benefit is derived from this source is difficult to determine, yet when we realize the tremendous amount of latent heat in water, and farther, that there is a difference in temperature, often of several degrees, in the water that falls on the soil in the spring and the water that flows out through the drains, we know that the heat of the water has been imparted to the soil. Where water is enabled to flow into the soil and out through the drains, air will follow and occupy the interstices. Though the circulation of this air is slow, it is considerable and the soil soon responds to the influence of the warm air in the early spring. The influence of good air circulation in the soil, caused by good drainage, accounts for the extra early warming up of the soil more than any other agency.

Mixing with other farmers leads me to conclude that only a small per cent. of them really realize these things as they actually are, but when these considerations are fully realized I am sure that they will look upon drainage as an investment and the sure means of paying off the mortgage, and, rather than farm wet land, land that is not paying for its keep, the farm will be bonded to drain itself.

In going about we can all see patches here and there in fields that are unproductive simply because they are water-logged. When they do dry out they become so hard that they cannot be worked to advantage, thus they lie idle three years out of four. The extra crops on this good land will more than pay the bill of drainage in a few years and the land be in still better shape for making more money. Look about and see if there are any spots that need this work, and if so, apply the remedy and watch results.

It is not necessary to have special equipment, as the work can be done with a pick and shovel. There are horse and power machines, however, which will cut the labor cost in half.

Illinois.

Looking to Better Corn and Wheat

A. E. GRANTHAM

IT is at this season of the year that the shrewd observer can find many lessons in looking over the corn fields. Just as the corn comes into ripening or when it is about ripe, it is possible to note many of the defects of the tillage operations of the season. Not only this, but the grade of the land and the variation in fertility of the soil may be noted in different parts of the field. If the crop is fired, or, in other words, the lower blades have turned dry up to the length of two or three feet of the stalk before the ear has matured, it indicates that the plants have suffered from a drought. In some portions of the country this is noticeable every year. This season in the vicinity of the writer very heavy rains followed close upon the planting season and continued until the corn was three or four inches high. This made it difficult to free the land from weeds, and more than that, it had the effect of packing down the soil to such an extent that when the dry weather came on later, the crop suffered from drought. It seemed that the earlier rains packed the soil so much that it did not hold the moisture and was not thoroughly aerated. This effect was particularly noticeable where the corn was planted on land that was not in sod the previous year. More frequent tillage would have offset this condition to some extent.

Seed corn selection pays big dividends. Before it is cut is the best time, but while husking is better than from the crib.

The lesson to be learned here is that corn should be planted on sod land wherever possible, and this is another reason for crop rotation. The appearance of the corn crop at this time will indicate also something of the needs of the land for certain elements of plant food. If the corn crop is well developed and slow in ripening it may indicate that the soil was well supplied with nitrogen but lacked the mineral elements of phosphoric acid and potash. On the other hand, if the stalks have not reached normal height and at the same time the ripening has not proceeded as it should it indicates that there may be a deficiency of all the elements of plant food. Well fertilized corn ripens normally. That is, the husks of the ears will begin to turn brown before the fodder is dry. If the husks do not turn dry before the blades it indicates further that there is a lack of phosphoric acid and potash in the soil. Of course, one must remember that different varieties of corn vary somewhat in this respect.

If wind storms have been prevalent since the corn has come into ear it will be seen that many fields that will not produce an average crop of grain have blown down much worse than those fields where the crop is above the average. It is a mistaken idea to think that because the corn plant bears a heavy ear it will be blown down more easily than the shorter, less well developed stalks. From the Experimental Farm in Delaware we have found that the check plats, or those plats which do not receive any fertilizer are more likely to be blown down in stormy weather than those plats receiving normal fertilizer. The reason for this is that the fertilized land enables the plant to establish a stronger root system than where no fertilizer is used. The writer has seen plats that would not yield more than 35 bushels per acre blown down badly, while on adjacent plats that would yield 75 bushels per acre the plants were very little damaged by the storm.

If the corn crop does not mature gradually it indicates that the land is deficient in plant food of one sort or another, or that too late a variety of corn is being planted. There is no question that fertilizers hasten maturity. In many parts of the country the cry has gone up among farmers that they will have to introduce a new variety of corn owing to the fact that the crop does not mature properly. This is especially true in the Middle West. The chances are that the fault lies in the land rather than in the variety of corn. If the soil has become deficient in phosphoric acid corn will not mature in so short a time.

To one who understands development and maturity of the corn plant many valuable points may be learned by closely observing the crop at cutting time.

ROTATE THE WHEAT CROP.

The world-wide demand for foodstuffs is placing a heavy obligation upon the American farmer. He is called upon to increase very considerably his annual production of wheat. The price of grain as fixed by the Government will greatly stimulate an increase in wheat growing. The result will be that those on farms on which little or no wheat is usually grown will now undertake a large acreage of this crop. In the Eastern States particularly there is bound to be an increased acreage of this cereal. A word of warning should be extended to the wheat growers of this section. Wheat is rather exhaustive upon the fertility of the soil, drawing, as it does, upon the stores of phosphoric acid and potash. Continuous wheat growing lessens the fertility of the soil more rapidly than almost any other crop. The attempt to increase the acreage of wheat is bound to result in either the disorganization of the cropping system on the farm or the organization of these plans. The farmer should never lose sight of the fact that a definite system of crop rotation is necessary in order to keep up economically the productive capacity of the soil. Instead of growing wheat two years in succession on the same field, as is now done in some sections, a better plan would be to change the rotation so as to have a different crop in each field every year. A five-field system of rotation is common in many parts of Delaware. This includes corn the first year, wheat the second and third years, grass the fourth year and pasture the fifth year. The three grain crops in succession draw quite heavily upon the resources of the land and this rotation is not well adapted for keeping up the humus content of the soil. Where wheat, corn and grass are the principal crops it would be better to have a four-field system containing corn one year, wheat two years and grass one year; or even a three-field system consisting of corn, wheat and grass. Under the five-field system two-fifths of the tillable land is in wheat. Under the three-field system one-third of the land will be in wheat. The latter plan allows for practically as much wheat and is not open to the objection of wheat following wheat directly.

Where more diversifying farming is followed it will be better to allow wheat to come after other crops that do not require so much soil preparation. For instance, potatoes, soy beans and cowpeas, sweet corn and silage corn may be removed and the land fitted for wheat without plowing. A large proportion of the cost of growing wheat is due to soil preparation. If crops like the above are followed by wheat, disking alone will furnish the desired preparation. In many

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.
EDWARD T. WALKER, Managing Editor
THOS. H. WITTKORN, Associate
CONTRIBUTING EDITORS
W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE
F. V. L. TURNER J. H. REED
SPECIAL REPRESENTATIVES
J. C. Billingslea, 119-123 W. Madison St., Chicago.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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OCTOBER 1, 1917

A Gift to Farmers

EVERY once in a while a man comes along in agriculture who is really big and does something for the world in general. Such a man is Dr. Jacob S. Lipman, Director of the New Jersey Agricultural Experiment Station. He has just dedicated to the public two patents recently granted to him covering the process of manufacturing available phosphates. Dr. Lipman has given a great deal of study, and written considerable about his experiments of treating raw phosphate rock and ground sulphur so as to form a soluble phosphate, which is so essential in the production of crops and which is the one form of plant food our Eastern soils largely lack. War demands for sulphuric acid have sent the price of acidulated rock to an unprecedented height, as one ton of the acid is used in treating one ton of the raw rock and forms two tons of the finished product. By the new method it is only necessary to mix ground sulphur and ground raw phosphate rock, both of which are available in large quantities at reasonable prices, with a small quantity of earth which contains certain kinds of fungi and bacteria. The sulphur is changed into sulphuric acid by these micro-erganisms and it acts on the phosphate rock, making phosphorus, which is soluble in water and thus readily available for growing plants.

It is hard to predict what this new process will mean to agriculture, its possibilities are so far reaching. That it will lead to more effective methods of soil treatment and larger crop yields goes without saying. When it is combined with our knowledge of nitrogen from legumes and potash from the subsoil, we have a combination which will be hard to beat.

Potatoes—Yesterday and Today

LAST spring all possible agencies and every conceivable means were being used to curtail the use of potatoes on account of their scarcity and attendant high price. Now all forces are working the other way to meet present-day conditions. With our four hundred million bushel crop now in sight it looks as if we must all eat a lot of them if we do not want the price to fall below what it cost to produce them. Our good friends of the Food Administration at Washington recently held a conference of representatives of all branches of the retail grocery trade to devise means for increasing the consumption of potatoes to save the wheat, flour and meat needed by our army and allies. One thing agreed upon was that retail grocers all over the country have promised to push the sale of potatoes for all they are worth during October and November when the great bulk of this crop reaches the market. At the same time, consumers are being taught the advantages of purchasing them in larger than half peck quantities, the possibilities in storing them for future use, and the high food value which they furnish.

The conference did not overlook the fact that it cost more to produce a crop of potatoes this year than formerly, and that the selling price should not only encourage the growers to strive for a large crop next year, but warrant them in improving the quality so that increased consumption would follow. As a means to this end the grading of potatoes offered for sale was strongly recommended. A better price is always obtainable for uniform shipments, and the waste of valuable car space and labor in handling culls, which are worthless in the city, can be saved if they are kept on the farm for stock food. In this connection it is interesting to note that a joint committee representing the growers, shippers and distributers recommended that the Bureau of Standards take up the matter of adopting 100 pounds as the unit for buying and selling potatoes and have prices quoted on this amount instead of a bushel.

The War and the Wood Lot

WE read and hear so much about the war giving a wonderful development to certain lines of trade and making millionaires, that sometimes we are apt to overlook some of the opportunities which come to the farm. The present fuel situation, with coal selling at a price unheard of before, offers an opportunity to the wood lot owner this winter. In many places the old chunk stoves which had given way to coal stoves will be put up again and wood for them will command a good price.

Before all the leaves fall is a good time to go into the wood lot and spot the trees which need cutting. They would have made better stove wood, of course, if cut this summer and allowed to season, but other work was too pressing for that. Consumers can't afford to be too particular in that respect this year. It is only fair, however, to all concerned to vary the price according to the heat-giving quality, same as all other farm products are graded.

In many instances the old-time and picturesque methods of a man at each end of a cross-cut saw and an ox team for delivery have given way to the gasoline saw rigs and motor trucks. The value of the time required to get wood has often been more than the value of the wood, but with a higher value for fuel this year, and the many ways of reducing cutting and delivery costs, it will pay well for time spent. The fact also should not be lost sight of that it is not alone the price received for the wood which counts, but also the beneficial effects of thinning the wood lot and eliminating a possible fire loss.

Aerial Mail Delivery Next?

IS it possible that we will see the day when rural mail carriers travel in flying machines, thereby eliminating the greatest obstacle, bad roads, the service has had to contend with? What would people twenty-five years ago have said if they were told the mail was to be delivered at the front gate each day by automobile? This thought comes to us as we read the following amendment, adopted by the House of Representatives Post Office Committee and approved by the President and Postmaster-General, to a Senate bill authorizing experiments in motor truck delivery by the Post Office Department:

"*Provided*, That the Sercetary of War may, in his discretion, deliver and turn over to the Postmaster General, from time to time, and without charge therefor, for the use in the postal service, such airplanes and automobiles, or parts thereof, as may prove to be, or as shall become, unsuitable for the purposes of the War Department, and the Postmaster-General is hereby authorized to use the same, in his discretion, in the transportation of the mails and to pay the necessary expenses thereof out of the appropriation for inland transportation by steamboat or other power boat or by airplanes from the appropriation for inland transportation by star routes."

Airship mail delivery seems rather visionary and out of reason, but why not? If the war board plan for thousands of airplanes and skilled pilots to man them is successfully carried out, surely all of them will not be destroyed by enemy flyers or anti-air craft guns. If they can travel great distances and drop bombs, surely they can drop mail bags. The idea is not new in France and Italy, where airplanes no longer suitable for military use are delivering mail. Italy is said to have an aerial mail route from her coast to Sardinia and is able to deliver 500 pounds of mail in two hours. Between her coast and Corsica, France maintains a similar aerial route. These examples show that the idea is not impossible, only out of the ordinary. All we need do is await developments—a great many more seemingly impossible things have been accomplished.

Look Out for Freight Tie-ups

"DO it now" is sound and timely advice if any buying or selling is contemplated involving the use of railroad freight. Predictions are that the coming fall and winter business will tax the railroad facilities as never before, and coupled with the usual delays due to unfavorable weather a situation might develop which could be largely avoided through prompt action now. While it might seem too early to anticipate next spring's needs, there are certain things which can be had now at no greater cost or effort, possibly considerably less, than just a few weeks before they are needed. The same is true in selling where railroad cars are needed. The wheat price is fixed so there is nothing to be gained by waiting until no cars are available. Why not talk the matter over with your dealer or railroad agent and see how he thinks things will work out.

WE, of Philadelphia, during the past few days have seen thousands of hale and hearty young men answer the nation's draft call and depart for the training camps. The sight was one long to be remembered, as they marched to the trains among more tears than cheers from the spectators. They are going to fight our battles, and unless we give them proper support at home it will be a losing game and we will see thousands more merely going out as cannon fodder. We must not forget we have a terrible war on our hands, and only by everybody putting their shoulders to the wheel can we hope to win.

IN view of all that is being said regarding wheat, official figures recently received from the U. S. Food Administration, are worth noting. On September 1st India reports having on hand for export 80,538,000 bushels of wheat, which, on account of war conditions, cannot reach the world's markets. This amount will be materially increased by the coming harvest in India. Should peace suddenly come, or the submarines be successfully conquered, this grain would be no small aid in filling the world's bread basket. Still we have those who decry a guaranteed minimum price of $2 per bushel for our 1918 harvest.

Bulletin Helps for Farmers

"Modern Methods of Protection Against Lightning" is the subject of Farmers' Bulletin No. 842, just received from Washington. A close study of this publication will give a correct understanding about a subject which has always been associated with incorrect and vague ideas. Plans for installing protection on various kinds of buildings are illustrated, so that a prospective buyer of lightning rods can acquire a knowledge of the subject and make an intelligent choice.

Housewives who are considering the making of apple and other fruit butters will be interested in Farmers' Bulletin No. 900, entitled, "Home-Made Fruit Butters." It consists of only seven pages and does not pretend to cover the entire range of products which may be made from fruit, but tells concisely how to make a few of the more common fruit products.

Live stock raisers will find a lot of valuable information in Farmers' Bulletin No. 834, entitled, "Hog Cholera: Prevention and Treatment." Hog cholera is said to destroy about 90 per cent. of all hogs that die from disease in the United States, but still Federal and state authorities are aiming to entirely eradicate it. This bulletin, containing 32 pages, gives many valuable suggestions toward this end.

All farm poultry keepers should send for a copy of Farmers' Bulletin No. 858, on the subject of "The Guinea Fowl." Its 15 pages cover the raising and marketing of these birds, which are growing in favor in the city markets, as they take the place of game birds which each year are becoming scarcer.

All the above Farmers' Bulletins, and any previously reviewed, may be obtained free from the Division of Publications, U. S. Department of Agriculture, Washington, D. C.

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R. B. RUSHING

THE past season of early wet weather and later dry weather, has been ideal for bringing out the inadequacy of our ditching systems. People usually live about up to their knowledge of things. Improvements only come when the necessity for, or the importance of, the improvement is borne in upon them. Almost all of the instructions given in our farmers' institutes and other sources of information have been devoted to the methods by which drainage systems are to be installed. To me, as a user of tile drains, by far the most important consideration is to understand the full benefits to be derived and when these are understood the rest will come easy. We do most willingly and intelligently the things the importance of which we understand.

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A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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OCTOBER 1, 1917

A Gift to Farmers

EVERY once in a while a man comes along in agriculture who is really big and does something for the world in general. Such a man is Dr. Jacob S. Lipman, Director of the New Jersey Agricultural Experiment Station. He has just dedicated to the public two patents recently granted to him covering the process of manufacturing available phosphates. Dr. Lipman has given a great deal of study, and written considerable about his experiments of treating raw phosphate rock and ground sulphur so as to form a soluble phosphate, which is so essential in the production of crops and which is the one form of plant food our Eastern soils largely lack. War demands for sulphuric acid have sent the price of acidulated rock to an unprecedented height, as one ton of the acid is used in treating one ton of the raw rock and forms two tons of the finished product. By the new method it is only necessary to mix ground sulphur and ground raw phosphate rock, both of which are available in large quantities at reasonable prices, with a small quantity of earth which contains certain kinds of fungi and bacteria. The sulphur is changed into sulphuric acid by these micro-organisms and it acts on the phosphate rock, making phosphorus, which is soluble in water and thus readily available for growing plants.

It is hard to predict what this new process will mean to agriculture, its possibilities are so far reaching. That it will lead to more effective methods of soil treatment and larger crop yields goes without saying. When it is combined with our knowledge of nitrogen from legumes and potash from the subsoil, we have a combination which will be hard to beat.

Potatoes—Yesterday and Today

LAST spring all possible agencies and every conceivable means were being used to curtail the use of potatoes on account of their scarcity and attendant high price. Now all forces are working the other way to meet present-day conditions. With our four hundred million bushel crop now in sight it looks as if we must all eat a lot of them if we do not want the price to fall below what it cost to produce them. Our good friends of the Food Administration at Washington recently held a conference of representatives of all branches of the retail grocery trade to devise means for increasing the consumption of potatoes to save the wheat, flour and meat needed by our army and allies. One thing agreed upon was that retail grocers all over the country have promised to push the sale of potatoes for all they are worth during October and November when the great bulk of this crop reaches the market. At the same time, consumers are being taught the advantages of purchasing them in larger than half peck quantities, the possibilities in storing them for future use, and the high food value which they furnish.

The conference did not overlook the fact that it cost more to produce a crop of potatoes this year than formerly, and that the selling price should not only encourage the growers to strive for a large crop next year, but warrant them in improving the quality so that increased consumption would follow. As a means to this end the grading of potatoes offered for sale was strongly recommended. A better price is always obtainable for uniform shipments, and the waste of valuable car space and labor in handling culls, which are worthless in the city, can be saved if they are kept on the farm for stock food. In this connection it is interesting to note that a joint committee representing the growers, shippers and distributers recommended that the Bureau of Standards take up the matter of adopting 100 pounds as the unit for buying and selling potatoes and have prices quoted on this amount instead of a bushel.

The War and the Wood Lot

WE read and hear so much about the war giving a wonderful development to certain lines of trade and making millionaires, that sometimes we are apt to overlook some of the opportunities which come to the farm. The present fuel situation, with coal selling at a price unheard of before, offers an opportunity to the wood lot owner this winter. In many places the old chunk stoves which had given way to coal stoves will be put up again and wood for them will command a good price.

Before all the leaves fall is a good time to go into the wood lot and spot the trees which need cutting. They would have made better stove wood, of course, if cut this summer and allowed to season, but other work was too pressing for that. Consumers can't afford to be too particular in that respect this year. It is only fair, however, to all concerned to vary the price according to the heat-giving quality, same as all other farm products are graded.

In many instances the old-time and picturesque methods of a man at each end of a cross-cut saw and an ox team for delivery have given way to the gasoline saw rigs and motor trucks. The value of the time required to get wood has often been more than the value of the wood, but with a higher value for fuel this year, and the many ways of reducing cutting and delivery costs, it will pay well for time spent. The fact also should not be lost sight of that it is not alone the price received for the wood which counts, but also the beneficial effects of thinning the wood lot and eliminating a possible fire loss.

Aerial Mail Delivery Next?

IS it possible that we will see the day when rural mail carriers travel in flying machines, thereby eliminating the greatest obstacle, bad roads, the service has had to contend with? What would people twenty-five years ago have said if they were told the mail was to be delivered at the front gate each day by automobile? This thought comes to us as we read the following amendment, adopted by the House of Representatives Post Office Committee and approved by the President and Postmaster-General, to a Senate bill authorizing experiments in motor truck delivery by the Post Office Department:

"*Provided*, That the Sercetary of War may, in his discretion, deliver and turn over to the Postmaster General, from time to time, and without charge therefor, for the use in the postal service, such airplanes and automobiles, or parts thereof, as may prove to be, or as shall become, unsuitable for the purposes of the War Department, and the Postmaster-General is hereby authorized to use the same, in his discretion, in the transportation of the mails and to pay the necessary expenses thereof out of the appropriation for inland transportation by steamboat or other power boat or by airplanes from the appropriation for inland transportation by star routes."

Airship mail delivery seems rather visionary and out of reason, but why not? If the war board plan for thousands of airplanes and skilled pilots to man them is successfully carried out, surely all of them will not be destroyed by enemy flyers or anti-air craft guns. If they can travel great distances and drop bombs, surely they can drop mail bags. The idea is not new in France and Italy, where airplanes no longer suitable for military use are delivering mail. Italy is said to have an aerial mail route from her coast to Sardinia and is able to deliver 500 pounds of mail in two hours. Between her coast and Corsica, France maintains a similar aerial route. These examples show that the idea is not impossible, only out of the ordinary. All we need do is await developments—a great many more seemingly impossible things have been accomplished.

Look Out for Freight Tie-ups

"DO it now" is sound and timely advice if any buying or selling is contemplated involving the use of railroad freight. Predictions are that the coming fall and winter business will tax the railroad facilities as never before, and coupled with the usual delays due to unfavorable weather a situation might develop which could be largely avoided through prompt action now. While it might seem too early to anticipate next spring's needs, there are certain things which can be had now at no greater cost or effort, possibly considerably less, than just a few weeks before they are needed. The same is true in selling where railroad cars are needed. The wheat price is fixed so there is nothing to be gained by waiting until no cars are available. Why not talk the matter over with your dealer or railroad agent and see how he thinks things will work out.

WE, of Philadelphia, during the past few days have seen thousands of hale and hearty young men answer the nation's draft call and depart for the training camps. The sight was one long to be remembered, as they marched to the trains among more tears than cheers from the spectators. They are going to fight our battles, and unless we give them proper support at home it will be a losing game and we will see thousands more merely going out as cannon fodder. We must not forget we have a terrible war on our hands, and only by everybody putting their shoulders to the wheel can we hope to win.

IN view of all that is being said regarding wheat, official figures recently received from the U. S. Food Administration, are worth noting. On September 1st India reports having on hand for export 80,538,000 bushels of wheat, which, on account of war conditions, cannot reach the world's markets. This amount will be materially increased by the coming harvest in India. Should peace suddenly come, or the submarines be successfully conquered, this grain would be no small aid in filling the world's bread basket. Still we have those who decry a guaranteed minimum price of $2 per bushel for our 1918 harvest.

Bulletin Helps for Farmers

"Modern Methods of Protection Against Lightning" is the subject of Farmers' Bulletin No. 842, just received from Washington. A close study of this publication will give a correct understanding about a subject which has always been associated with incorrect and vague ideas. Plans for installing protection on various kinds of buildings are illustrated, so that a prospective buyer of lightning rods can acquire a knowledge of the subject and make an intelligent choice.

Housewives who are considering the making of apple and other fruit butters will be interested in Farmers' Bulletin No. 900, entitled, "Home-Made Fruit Butters." It consists of only seven pages and does not pretend to cover the entire range of products which may be made from fruit, but tells concisely how to make a few of the more common fruit products.

Live stock raisers will find a lot of valuable information in Farmers' Bulletin No. 834, entitled, "Hog Cholera: Prevention and Treatment." Hog cholera is said to destroy about 90 per cent. of all hogs that die from disease in the United States, but still Federal and state authorities are aiming to entirely eradicate it. This bulletin, containing 32 pages, gives many valuable suggestions toward this end.

All farm poultry keepers should send for a copy of Farmers' Bulletin No. 858, on the subject of "The Guinea Fowl." Its 15 pages cover the raising and marketing of these birds, which are growing in favor in the city markets, as they take the place of game birds which each year are becoming scarcer.

All the above Farmers' Bulletins, and any previously reviewed, may be obtained free from the Division of Publications, U. S. Department of Agriculture, Washington, D. C.

The October Garden

W. F. MASSEY

October in the Middle Atlantic States is usually a time for preparing for winter protection of crops. However, in a well ordered garden there are still crops for harvesting.

The fall crop of head lettuce should now be coming in and the plants will be greatly helped by side dressings of nitrate of soda.

The spinach sown the middle of August will now be ready for cutting. The spinach that is intended to winter over for spring growth should have been sown the middle of September. Down here in the sunny southeastern corner of Maryland we make the last sowing of spinach the first of October, and get plants just large enough to winter well.

Late in October the garden should be thickly covered with stable manure, covering all vacant places and making a mulch between the rows of winter vegetables.

USING DOUBLE GLAZED SASH.

One of the most important matters in October is the preparation of the cold frames and sashes for the late fall and winter crops. The double glazed sashes will keep out all frost we have here if the frame is well banked on the outside. I had about concluded that we would have to abandon the double glazed sashes on account of the darkening of the glass by the dust that works in between the two layers of glass. But a manufacturer has put on the market double glazed sashes which can be easily cleaned by removing the lower row of panes and turning the hose in and washing out the dirt.

The double glazed sashes are much heavier than the single ones, of course, and some have objected to this. But here in this flat country between the ocean and the bay the wind has a wide sweep and the heavy sashes are not so apt to blow off, as we have had the single ones do.

I have secured a lot of the new double glazed sashes and will give them a test this winter. After all, the obscuration of the double sashes is not more than that made from the use of straw mats in winter on the single sashes, and the mats are not needed on the double ones.

LETTUCE FOR THE WINTER.

For the outdoor crop of lettuce I have the Hanson and the Wonderful, also called New York. For the earliest crop in the frames I will use the Grand Rapids leaf lettuce. Our Eastern markets all demand head lettuce, while under the force of conditions (since head lettuce does not do well there) the Western folks use this leaf lettuce entirely, and for the late fall we find it an excellent variety in the frames. We plant one 3-sash frame in this variety, setting the plants 6 inches apart, so that they crowd and blanch each other, and we generally conclude that it is better than head lettuce.

Other frames are planted this fall with the All Heart lettuce. Our market growers use the Big Boston entirely and I have also been using it. But it takes too much room in my small frames with its spread of outer leaves, and the really edible part is not larger than that of a closer heading variety. Hence we are going to use Dreer's All Heart this winter.

Hittinger's Belmont is also a neat and close heading variety, an improvement on the old Tennis Ball. For the late fall and Christmas crop we set the plants in the frames in October 6x8 inches apart. The Big Boston needs 8x10 inches, so that there is a considerable saving in the closer heading varieties.

The frames must be well stuffed with old rotten manure and being portable, can be set on soil that has not grown lettuce recently, and hence less liable to disease. This is the main reason why I scatter my sashes in small 3-sash frames, though this winter I shall have one frame of a dozen sashes, a temporary one for the season, on which to test a dozen of the newer double glazed sashes. After the plants are set and have started to grow I add, between the rows, a good dressing of a high grade fertilizer; that is, nitrate of soda and bone meal mixed equally, and use half a pound to a 3x6-foot sash space. Lettuce must be highly fed and pushed into a rapid growth to be good.

STRAWBERRIES.

In the latitude of Philadelphia October is the best time to set new strawberry plantations. Down here we prefer November. I have always found that the plants are more certain to live when planted in the late fall, and there will be some root action before winter. In fact, in North Carolina the November set plants made so strong a growth that they gave a full crop in the spring, a saving of time over spring planting.

BLACKBERRIES.

We picked the last of the Nanticoke blackberries September 10th, just one month from the picking of the first. This is a fine fruit for home use, but too soft for shipping, and is the latest of blackberries.

RASPBERRIES.

The St. Regis raspberry is now making its fall crop and a row 100 feet long will give a good handful at a picking. Its spring crop is little better. After three years trial I find that this raspberry, though the fruit is good, is a cumberer of the ground and not worth the room it takes. Mine will be grubbed out and replaced by something better.

ROOT CROPS FOR WINTER.

Here we leave in the rows where they grew, parsnips, salsify, leeks, late carrots and beets. In colder sections the carrots can be lifted and set upright in trenches like some use for celery and covered with straw and the beets can be pitted. There is no need for lifting the other things anywhere except to have them where they can be gotten at, but our soil is open in winter more than it is frozen and we seldom have any difficulty in lifting root crops for use.

In the fall cleaning do not burn the garden waste, but pile it in a heap to rot down and return to the garden to maintain the humus or organic decay which is essential to bacterial life and the retention of moisture in the soil.

Estimates of the potato crops expected in the various states this season indicate that Pennsylvania will drop from third to fifth place with a crop of over 32,000,000 bushels, an increase in production over the average of 40 per cent. Michigan, which promises to regain first place as a producing state shows an increase over the 5-year average of 33 per cent.; New York will rank second, Wisconsin third, and Minnesota fourth.

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The New Jersey Tractor Demonstration

Our friends in the West for some years now have had their annual national tractor demonstration, while we of the East have had to study catalogues and advertisements and make comparisons of the wonderful tales told by the enthusiastic tractor salesmen. Things are now changing for the better, however, and only a few days ago, Sept. 18, 19 and 20, at Plainsboro, New Jersey, more than 2000 interested spectators attended what will become an annual event. It was the tractor demonstration arranged by the Commission on Mechanical Power in Agriculture, assisted by the New Jersey Agricultural Experiment Station and the New Jersey State Chamber of Commerce, and held on the Walker-Gordon Farm. Mr. H. W. Jeffers, manager of this large dairy farm, granted the commission the use of a large alfalfa field for plowing, and thirteen tractors were there to show how they could turn under a 4-year alfalfa sod. The field was level, the soil in ideal condition for plowing and no stones as large as hen eggs in sight. Plowing was the chief object of the demonstration, although some of the machines, after finishing their allotted work, traveled over the soft ground to show their ability in completing the job. No belt work of any kind was allowed, nor any spectacular features. All the tractors shown were of the light weight one man type, and the ease with which the plows were thrown in and out on the turns while traveling at high speed was the admiration of all who saw them.

Not following the rules laid down at Fremont, Neb., at the national demonstration, where the devices for converting automobiles into tractors were compelled to take care of themselves, the New Jersey people welcomed them and one was working daily on the grounds. Looking at the matter in a broad light it would appear that these machines in the end will have a beneficial effect on the tractor industry. Just as every boy in the possession of his first penknife looks forward to the day when he can have a larger and better one, and as every flivver motorist soon becomes inoculated with the joy of traveling and begins to scheme how he can trade "the car" in for a six or eight cylinder real automobile, so the cheap convertibles, the "work all day and sport all night" ones, will give many men their first insight into the possibilities of tractor plowing. That they will plow has been demonstrated many times, not as good as a machine costing four times as much —what sane man would expect them to —but good enough in many cases to show their operators how a great deal of the heavy work can be taken from the horses, and when it is once seen that horses can be supplemented the best outfit will be none too good for the man who sees the possibilities in this new application of mechanical power in agriculture.

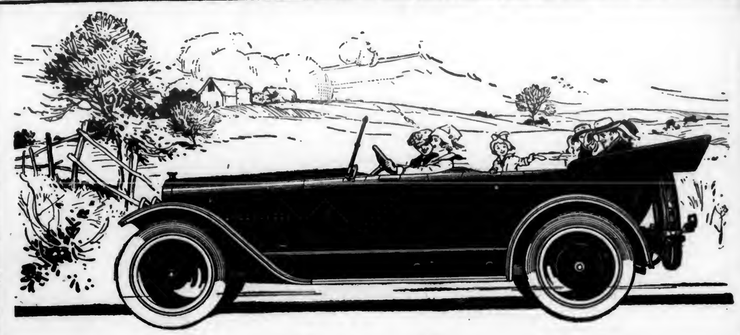
Each afternoon there were 12 different makes of tractors all plowing at one time an equal strip of ground staked out by the committee. There were those with two wheels, three wheels, four wheels and no wheels at all, the track laying kind, so that it was not difficult to compare them. The spectators never questioned their ability to plow; they were all cutting a furrow to the same depth and pulling two or three plows each turning a 14-inch furrow, according to their power rating. The great points on which information was sought were their adaptability and ease of operation. All of them were being operated on the same quality gasoline, although no attempt was made to keep records of their consumption of fuel or oil or the time it took to do the work. While kerosene is coming to be the universal tractor fuel, on account of its low cost, and most of the tractors there were, or could be, equipped to use it, all of them used gasoline. Otherwise the ones which were built only for "gas" would have had an advantage over the others.

Although there was no contest of any kind, some of the operators seemed to take great delight in speeding their machines to the top notch in an effort to be done first, but more than once did such bursts of speed cause delay. The real farmer has long since learned that it is the team that goes steady all day, rather than the one which has to catch its breath at each corner, that finishes a field the quickest. High speed machinery means more wear, and more wear means more repair charges, one of the great tractor problems. Our "Mule-Henry" friends point to the 5 and 10-cent stores as their repair headquarters, but other makes have not established so many agencies, and repair parts mean delay and big bills.

Since the beginning of the tractor industry, when the early models were merely stationary engines mounted on wheels, rapid strides have been made. Advantage is being taken of all the costly experimental work done in the automobile industry and the auto truck type of engines are rapidly coming into use. Depreciation charges, another great drawback to tractor investment, are being rapidly overcome as more cut gears, instead of forged, are being used, and other refinements made which come with the growth of the industry. Possibly it is safe to say that tractors are today where the automobiles were ten years ago, but that it will not take that long to catch up to their efficiency, in view of the fact that the road is not being traveled for the first time.

One striking feature of the affair was the wide territory from which persons came solely to see the different machines. People were there from all over New Jersey, eastern Pennsylvania, southern New York, Maryland, Delaware and a few from Virginia. Their great desire was to see the machines working side by side.

The Commission on Mechanical Power in Agriculture, consisting of Putnam A. Bates, New York City, chairman; F. R. Stevens, Geneva, N. Y.; Robert W. Johnson, New Brunswick, N. J.; Ferdinand W. Roebling, Jr., Trenton, N. J.; S. G.



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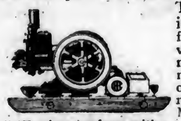
THREE International machines that will pay their way on any farm where there is corn to market or livestock to feed are:

Keystone Shellers, adaptable to large or small ears, shell hard or soft corn clean without cracking the kernels or crushing the cobs. There are eight styles in 1, 2, 4, and 6-hole sizes, with capacities from a few ears shelled by hand, up to 4,000 bushels per day.

International Feed Grinders, for grinding small grain, corn on the cob, or corn in the husk, come in three styles with regular or special plates, 6", 8", and 10" in diameter. Capacities from 5 to 30 bushels per hour take care of all ordinary requirements.

Mogul Kerosene Engines furnish steady, economical power for these and other farm machines. They are simple, reliable, satisfactory; operating on the fuel that is cheapest or most convenient to buy. Mogul kerosene mixers; built-in magnetos that make batteries unnecessary; enclosed crank cases; full equipment, ready to run; are features of all Mogul engines, from 1 to 50-H. P.



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Rhodes, New York City, and Arthur J. Slade, Washington, D. C., met during the demonstration, and in view of the success with which their efforts had in an outdoor demonstration they decided to hold a big indoor exposition at a convenient place some time this winter. As the object of the commission is to increase agricultural production through the aid of labor saving devices, their plan for the coming event is to bring together all kinds of mechanical aids where the prospective purchaser can view and study them. Plans for next year's tractor demonstration were also talked over and it is highly probable that it will be held again in Plainsboro.

Apple Pomace

J. T. BARTLETT.

Apple pomace has a demonstrated value in stock feeding. It costs farmers favorably situated next to nothing. It is easily stored and easily fed. In fruit districts every year, however, and wherever there are cider mills, great quantities of pomace go to waste. One reason, doubtless, is the poor results obtained when pomace is not fed properly. It should not be employed primarily as a food, but as a relish. It is best used in conjunction with corn silage, one for morning, the other for night. New England dairymen who have used it for years with good results say that apple pomace should be fed but once a day, and their ration varies from a small to a large feed scoopful, according to the size of the animal.

Settling into a solid mass, apple pomace preserves itself, and the bin or old silo in which it is stored does not have to be air-tight. A mold several inches deep forms over the top. This, dairymen throw out as they feed. During very cold weather the practice is to put burlap sacks over the section being fed. This prevents serious freezing.

Analysis indicates that the food value of apple pomace is somewhat less than that of corn silage. It contains protein, fat and carbohydrates, but only the latter in considerable quantities. Like other succulent feeds, however, its real value is much greater than the analysis indicates.

Disastrous results sometimes attend use of apple pomace, because the pomace contains burlap strings picked up at the cider mill. These strings may form wads or balls in a cow's stomach, with fatal consequences. A little care will avoid any danger in this quarter.

Putting Celery in Cold Storage

If celery is packed in small, well ventilated crates and carefully handled it will keep in good cold storage for three months, or longer, according to results obtained in a 4-year test just reported by the United States Department of Agriculture.

The celery used in the experiments during the four years was grown and stored in western New York. Each experimental lot was packed in the field and crated in the storage house by representatives of the Department of Agriculture. In every instance the celery used was free from disease and was so handled that the different lots were comparable. Six types of crates were used—a standard crate, a partition-ventilated crate, a 16-inch crate, a 14-inch crate, a 10-inch crate, and an 11-inch crate.

The smaller crates appear to remove the two chief causes of spoilage—poor ventilation and breakage. In every instance the decay was much less in the small and partitioned crates than in the standard crates, say the specialists, in summarizing the results of the test. Of the crates used during two or more years, the 14-inch crates gave the best results, followed by the 16-inch, the partitioned, and the 11-inch solid head, in the order given. Small crates cost a little more than the standard crate in proportion to their capacity, but this disadvantage is more than offset by the smaller percentage of breakage. Small crates are preferred by many storage-house managers and handlers of celery, because of the ease in handling and the smaller amount of breakage. In a market test made in January, 1916, celery in small crates sold for a much higher price than similar celery in standard crates handled in exactly the same way.

Tractors which are able to prepare the ground after plowing it and furnish belt power wherever needed have their place on a small farm as well as a large one

With corn worth 2 cents an ear, or more, it pays to husk the corn fields clean. The ears that are missed don't help feed the Allies.

Before Deciding On Your Engine—

Look up the question of construction, first cost, quality, power, speed regulation and fuel used. Learn what produces good compression, positive ignition, easy starting, durability and long life. Read about the advantages of vertical valves, high-tension magnetos, kerosene as a fuel, preheating fuel, etc. These subjects and many others vital to the engine user are fully explained by word and illustration in Ed. H. Witte's new (copyrighted) book, "How to Judge Engines."

Any subscriber who is interested in an engine for any purpose, should read this book. It's the original "How-to-Judge-An-Engine" book—written from an experience of over 31 years in the business. Ed. H. Witte is the most successful individual gas engine manufacturer in the U. S. today, owning and operating the largest exclusive, direct-selling engine factory in the world. You get the inside story of engine making by a practical engine man and inventor of engines. He tells you what to do with an engine and "How To Make Money" with one.

If you want to know the "Why" of high-grade gas engine construction, send your name and address, today, to the Witte Engine works, Dept. 2540, Kansas City, Mo., or 2540 Empire Bldg., Pittsburgh, Pa.—Adv.

Fall Planting of Fruit Trees

Over the greater part of Pennsylvania, and southward, most fruit trees can be planted as successfully in the fall as in spring, if the conditions are right. The chief points in favor of fall planting are that such trees usually get an earlier start in the spring, the soil and weather conditions are generally more favorable for planting, the dangers of improper winter storage are avoided, and the fullest stocks and choicest trees are then available at the nurseries.

In order that fall planting may be successful, advises Dr. J. P. Stewart, head of the Horticultural Department at the Pennsylvania State College, the soil must contain the proper amount of moisture, holes must be prepared before the trees arrive, trees must be well matured before rigging, and enough open weather must occur after planting to enable the roots to get some connection with the soil before winter.

The conflict between the last two items is the usual point of difficulty in fall planting. In general, however, the young trees are sufficiently mature by the early part of October to permit the usual digging and "stripping" of foliage without material injury, and any time within the same month is usually early enough to enable the trees to get properly established before cold weather appears, as the roots normally remain active much longer than the tops.

Where the conditions mentioned can all be obtained, fall planting is probably preferable, but where they are lacking in any important particular, or wherever the winters are exceptionally rigorous, it is usually safer to defer planting until spring.

Spray Now Instead of Spring

Fall spraying after the leaves of fruit trees have dropped may be substituted for the usual dormant spraying, and orchardists will thus overcome the difficulties in handling freight and obtaining labor in the spring. San Jose scale, unless extremely bad, can be controlled practically as well by fall operations as by deferring the work till spring, according to entomologists of the Ohio Agricultural Experiment Station.

Heavy spray tanks are much more easily hauled over firm ground in the fall than over soft ground in the spring. Men and teams are more available for doing the work in fall than when the rush of spring work is on. Also the application of such a spray as lime-sulphur solution or a miscible oil to orchard trees confers considerable immunity from attacks by meadow mice and rabbits during the winter.

Insecticides and any required machinery should be ordered now for this November spray. No delay will then be occasioned when spraying time comes.

Better Corn and Wheat

(Concluded from page 330)

cases it would be better to disk the ordinary corn land rather than attempt plowing. This is an important item, particularly where the corn crop matures a little late. Sandy loam soils are just as thoroughly prepared by disking as by plowing and results are perhaps better if the seeding is to take place late in the season. Late seeding is one of the causes of the low yield of wheat in many parts of the East. Every effort should be made to get the seed in on time. The ordinary method of preparing land for wheat after corn may be shortened by either disking the corn after the corn is harvested or by seeding the wheat in the standing crop. The latter method is accomplished by the use of a 1-horse wheat drill which is run through the standing corn before it is cut. This drill is provided with both fertilizer and grass seeding attachments, so that all the usual operations connected with the seeding of wheat may be carried out. In most cases as good yields of wheat will be secured by this method as where the corn stubble is plowed late and hastily seeded. A drill will work well unless the corn is badly twisted by storm or the land is very weedy. When the corn is down the plants may be turned ahead of the drill and the seeding takes place in a very satisfactory manner, although more labor is required. Where it seems desirable to sow wheat two years in succession it is a good plan to follow the first crop with cowpeas or soy beans to be turned under before the second crop of wheat. In most cases, however, this involves two plowings. One after the wheat is removed and another when the peas or beans are turned under. It will be seen that this is expensive from the point of labor required. In most cases a better rotation will lessen the amount of labor in fitting the land for wheat and also leaves the soil in a better condition for a good yield.

A wheat crop requires little hand labor and for that reason is adapted to extensive farming. However, the question of the distribution of the labor on the farm is also important. It is clear that extensive wheat growing cannot be carried on together with tomato or fruit growing, since these operations conflict. Such crops as soy beans, cowpeas, sweet corn and early potatoes combine well with wheat growing, since they are removed before it is time to sow wheat, and the land is left in a condition that requires the minimum amount of labor to fit it for seeding.

APPLYING LIME TO WHEAT IN THE FALL.

We are often asked the question whether it pays to apply lime to wheat late in the fall after the wheat is sown. No special experiments have been conducted along this line, but there seems to be considerable evidence that the clover which is to be seeded next spring will be benefited by an application of lime to wheat in the fall.

This season particularly it has been difficult to get prompt shipments of lime and many farmers may find it necessary to sow the wheat before the lime arrives. If the lime is burned or hydrated, it would be better to apply it after freezing of the land takes place. If ground limestone is used it may be put on at any time since it will not have any injurious effect upon the growing wheat plant. Ground limestone particularly should be applied in the fall so that it will be dissolved through the action of the winter rains and frosts. The tendency of lime to dissolve and work downward in the soil is one reason why it should be applied in the fall if it is merely scattered on the surface of the land. The writer has seen very good results secured from liming wheat land early in the spring. The wheat was not particularly benefited, but one could see to a line by the growth of the clover where the lime had been applied. Lime is such an important soil constituent in all of the Eastern Sattes that it should be applied whenever convenient, providing it does not injure the growing crop.

Scheduled Farmers' Meetings

Dairy Cattle Congress, Waterloo, Ia., October 1-7.

Eastern States Exposition, Springfield, Mass., October 12-20.

National Dairy Show, Columbus, O., October 18-27.

American Pomological Society, Boston, Mass., October 31 to November 4.

International Live Stock Exposition, Chicago, Ill., December 1-8.

Courier of Soldier and Civilian

Our troops are now on the firing line in France. While at home every instrumentality of our government and private industry is being urged at top speed to insure victory. The telephone is in universal demand as courier, bringing to the front men and the materials of war.

From the farms the telephone courier brings foodstuffs; from the mines the telephone courier calls forth metals; from the factories this courier gathers manufactured products. The telephone courier leads troop and supply trains to the front; summons fighting flotillas and transports; and, in fact, leads practically every contributing unit of supply to the firing line.

At such a time, when the government is straining at its task and every industry is loyally contributing its energy, this national courier is constantly being used to call up the reserves. It is at the base of every contributing activity.

The right of way must be given to the military for the direction of troops and to the government for the marshaling of endless supplies. To do this, and also make the telephone serve all other needs, both patriotic and private, all must economize.

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A 50-gallon barrel of Scalecide free to any any one who will suggest a *fairer* guarantee than that given below.

"SCALECIDE"

As proof of our confidence and to strengthen yours, we will make the following proposition to any fruit grower of average honesty and veracity:

Divide your orchard in half, no matter how large or small. Spray one-half with "SCALECIDE", and the other with Lime-Sulfur for three years, everything else being equal. If at the end of that time, three disinterested fruit growers say that the part sprayed with "SCALECIDE" is not in every way better than that sprayed with Lime-Sulfur, we will return you the money you paid us for the "SCALECIDE".

Send for our free booklet, "Profits in Fall Spraying".

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That's one of the secrets of Harrison Quality. Our apple and peach trees are budded from selected trees of superior quality. "Like produces like," you know. All Harrison trees are grown in our own nurseries, true-to-name and certified free from disease. We grade liberally and pack carefully. Our 1917 Fruit Guide gives many practical pointers on fruit growing. Describes all the leading varieties of apples, peaches, pears, etc. Also small fruits and ornamentals. You should have a copy. It's free. Send today. Plan for bigger crops of better fruit. "Largest growers of fruit trees in the old"

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9 CORDS IN 10 HOURS

SUPER EASY No Back ache. Weighs only 44 lbs. SAWS SAWS SAWS

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$10,000.00 Pack this Hertzler & Zook Portable Wood SAW

This is the cheapest saw made. Only $9.90 *new* frame to which a sipping table can be added. Guaranteed 1 year, sawing reduced and all charges paid if not satisfactory. Write for catalog.

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TRAPPERS! Furs are high; trapping pays. "Trapcraft," Illus., tells how to trap fox, muskrat, skunk, wolf, mink, etc., water, deer, snow, log, blind sets, etc., how to fasten traps, stretch furs, make deadfalls, snares. Fur News, big illus. magazine, tells about fur markets, trapping, hunting, woodcraft, fishing, for farming, roots, herbs, ginseng, etc. Send 10c. coin for copy of "Trapcraft," and sample copy of magazine. FUR NEWS, 71 W. 23d St., New York. Room 639

Onions Apples, Potatoes, Hay

Fruits, poultry and all produce wanted.—
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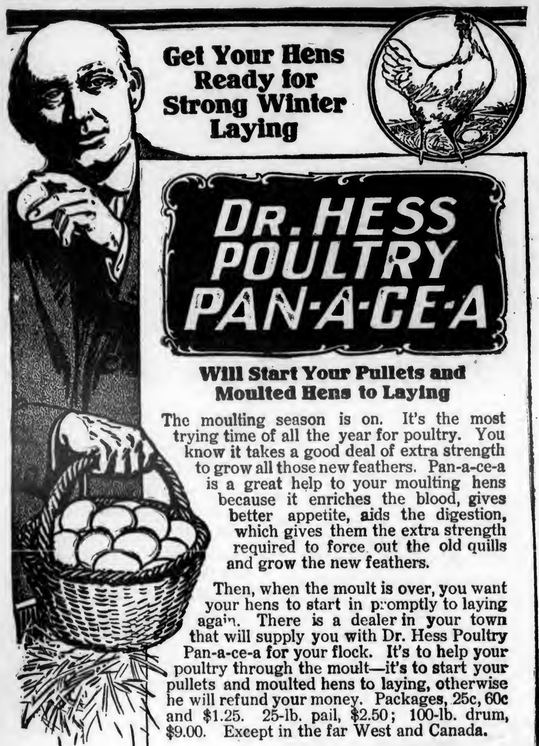

Get Your Hens Ready for Strong Winter Laying

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Will Start Your Pullets and Moulted Hens to Laying

The moulting season is on. It's the most trying time of all the year for poultry. You know it takes a good deal of extra strength to grow all those new feathers. Pan-a-ce-a is a great help to your moulting hens because it enriches the blood, gives better appetite, aids the digestion, which gives them the extra strength required to force out the old quills and grow the new feathers.

Then, when the moult is over, you want your hens to start in promptly to laying again. There is a dealer in your town that will supply you with Dr. Hess Poultry Pan-a-ce-a for your flock. It's to help your poultry through the moult—it's to start your pullets and moulted hens to laying, otherwise he will refund your money. Packages, 25c, 60c and $1.25. 25-lb. pail, $2.50; 100-lb. drum, $9.00. Except in the far West and Canada.

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Keeps Hogs Healthy. Drives Out the Worms.

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Quick action on your part is really necessary if you wish to get your share of these unheard of savings. So, don't delay—sit right down and write your order now. Every offer below is covered by our satisfaction or money-back guarantee.

Order Today From This Bargain List!

Ajax high grade rubber surfaced Roofing put up 108 sq. ft. to the roll. Complete with nails and cement. Lot No. GC302, 3 ply, roll $1.27; 2 ply, roll $1.17; 1 ply, roll **$1.07**

Rawhide Stone Faced Gold Medal Roofing guaranteed 15 yrs. Rolls contain 108 sq. ft., nails and cement included. Lot No. GC303, Roll **$2.20**

Our famous Rawhide Rubber Roofing, 3 ply, guaranteed for 12 years; a high grade covering. Rolls contain 108 sq. ft., nails and cement included. Lot No. GC304, 3 ply, roll $1.50; 2 ply, roll $1.40; 1 ply, roll **$1.20**

10,000 Rolls of Extra Heavy high grade Roofing; Red or Gray Slate Coated, Rock Faced, Brown Pebble Coat, Double Sanded, Mineral or Mica Surfaced. Lot No. GC305, roll 108 sq. ft. with nails and cement **$1.90**

28 gauge, painted, 2½ in. corrugated overhauled siding sheets; 5½ ft. long, Lot No. GC306, 100 sq. ft. **$2.50**

26 gauge painted 2½ in. corrugated overhauled roofing sheets, Lot No. GC307, 100 sq. ft. **$3.00**

24 gauge Extra Heavy painted 2½ in. corrugated overhauled sheets for roofing barns, granaries, etc. Lot No. GC308, 100 sq. ft. **$3.50**

If you need further information before ordering, send us a rough sketch of your building showing size of roof, length of rafters, etc. Mention the kind of roofing you wish and our low freight paid prices will follow.

ADDRESS OWNERS: **HARRIS BROTHERS CO.,** Dept. GC-40, 35th & Iron Sts., Chicago

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Via A Practical Poultry Journal—all about the care and management of poultry for profit. Contains 52 to 100 pages monthly. Finely illustrated. Three years, $1.00. Trial Subscription, Six months, 25 cents. POULTRY ITEM, Box F, Sellersville, Pa.

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Caponize and double the weight and quality of your cockerels. Easily done. Complete outfit—full instructions—prepaid.
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Speeding Up Farm Poultry

(Concluded from page 329)

shed. The result has been more eggs at a premium for the producer and double the volume of business for the collector and his assistants.

A little arithmetic may not be amiss: Clean eggs are at least 25 per cent. more salable than soiled eggs; housing at $1 per head is wiped out in the sale of two 50-cent dozens of eggs per layer! An increase from 60 eggs per year to 100 eggs means that three dozen eggs are to be laid before January 15th, by the pullets hatched and matured in from five to five and one-half months, for which the owner will receive at least $1.50. Under ordinary conditions and environment these three dozen eggs would not be laid, but the cost of feeding would be the same as under methods surrounding the 60-egg practice. Overcoming the additional cost of feeding, where the farmer produces his own grain and can feed rejected milling wheat or screenings, at 30 cents per dozen this still leaves a big margin (40 per cent.) of profit and the so-called refinements, litter, clean nests, draft-proof houses and clean water, make for additional profit. There are no such things as refinements when profit is in sight and this is true of purchasing incubators and brooders and any labor saving devices. A few dollars for lumber, some labor and close observation to detect discrepancies and prescribe remedies, will turn into the farm treasury more profit on the investment than from any other branch of agriculture.

Not all chickens hatched are perfect specimens—the ill-formed, weak and poorly developed have no place in the flock. With the egg producer the law of survival of the fittest must be rigidly enforced to secure success. Successful culling is relentless warfare against unfit. Culling begins with the newly hatched chicks and ends in the following spring, when those fowls intended for breeders are selected because of their worth—their actual performances as fall and winter layers—for it is to perpetuate an evenly maturing flock of fall and winter performers that the egg farmer is working. All non-layers should be removed not later than December 1st, and poor layers can be detected by January 1st. At that time poultry meat sells at a good price—really the sale of these birds is taking profit from loss.

Trap-nesting is the sure road to absolutism in breeding for eggs as far as science has reached up to the moment. One pen of pullets, trapnested through the three winter months, prove out many things. A selected lot, hatched on a known day, are trapped for date of maturity, egg yield and to teach the trapper the characteristics correlated to productivity. This knowledge equips the egg farmer with an ability not obtainable in any other way and enhances his value to the production of heavy laying strains beyond comparison with any known method of reproducing heavy laying individuals. Families can be constructed from which several times the present output can be maintained and the 200-egg hen has now so long been with us that every farm carrying poultry should be above the 100-egg average required for positive profit.

Worth While Suggestions

The egg is rapidly climbing the ladder to fame—twelve for one dollar.

While the molt is on with some, and before it begins with others, add 2½ lbs. of bran and 7½ lbs. of old process oil meal to every 100 lbs. of the mash mixture.

There is about 400 per cent. more poultry meat in storage than last year—beef was never so high—next winter poultry meat is going after some of the money with which this country seems to be flooded; hold the birds you feel you must sell, for a very much better market. In the meantime some of the good ones will lay some fancy priced eggs.

It is not wise, now that most of the molters are nearly through, to sell for market—laying returns earlier with the early molter.

Ever counted the cases of misery that roosted in trees, on farm machinery and other exposed places last winter?

It's the sick chicken that comes from lack of nourishment and overtaken by exposure.

If you are willing to give a little more time to the flock and secure better results, do so; if not, don't, and you lose something.

An old hen, healthy and strong, is more able to resist disease infection than the young pullets that are going to do their bit this fall—protect them with disinfectants and a little slaked lime.

Pullet eggs are small, too small for commercial purposes in the early stages of laying—the addition of a little oil meal to the laying mash will bring up the size, if the mash is liberally fed.

Never ship eggs found in a nest on the floor or in some dark corner—try them for home use and save a big loss on an otherwise perfectly good crate of eggs. The stale egg insists upon going to the surface of a pail or pan of water, the fresh egg rests solidly on the bottom—half stale it moves between bottom and surface.

Get together in your community on the egg co-operative scheme; twenty shippers can so regulate collections, candling and prices to pay a good citizen to take care of the whole job and then show an additional profit on his work.

Green Food for Poultry

The health of the poultry flock in winter can be maintained best if the birds are supplied at all times with green, succulent food. The production of the flock as well can be materially increased by such a practice. Now is the time to plan for the supplying of winter greens. The department of poultry husbandry of the New Jersey Agricultural Experiment Station advises that probably nothing is better than mangel beets. If they have not been grown on the poultry farm they should be purchased at harvest time and stored in a root cellar or pit at a convenient place for feeding. Late cabbages can be fed during late fall and early winter to advantage.

Wonderful Egg Producer

Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and makes hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker, write E. J. Reefer, poultry expert, 4367 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his Free poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

Household Sewage Disposal

OUR EXPERIENCE POOL

We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1229, OCT. 15.—What has been your experience this year in spraying the orchard and thinning the fruit? Have you or your neighbors tried the new "dusting" method? Do you own your own spraying outfit, hire the work done or combine with neighbors?

TOPIC No. 1230, Nov. 1.—What plans have you made for extra work this winter? Will you crush stone, install a sawmill, grind limestone or cut fodder for yourself and neighbors? Tell us your experience with any of these jobs and what kind of power you have found most satisfactory.

TOPIC No. 1231, Nov. 15.—Tell us your experience applying lime to the soil. What form did you use and how much per acre? When, where and how did you spread it? How do you tell when it is needed? To what extent and where most has it paid you?

M. M. C., McKees Rocks, Pa.—About twelve years ago I purchased a tank which will hold 110 barrels. I built a concrete foundation for the tank and placed it so as to catch the water from the roof of the buggy shed. This shed is above the house and gives us water on the second floor of the house.

The sewage from the bath, toilet, sink in the kitchen and one on the porch is conveyed to the cellar and through an underground ditch to the outside toilet in a 4-inch tile sewer. This outside toilet is about 50 feet from the house and is a concrete vat 10 feet in depth. About 8 inches from the bottom is the outgoing sewer, also a 4-inch sewer. This leads to a cesspool about 300 feet away. This sewer is also buried. As this was done so long ago, I do not remember the exact cost, as I did the work myself except the water pipes and the plumbing for the bath room. It would not pay any one to be without it if they have a water supply. A cistern would be more satisfactory than a tank, as the tank dries up in the warm weather if it is not full. There has never been any trouble with it, and no odor either from the toilet or the cesspool, even in the warmest weather.

P. R. S., Wellsburg, W. Va.—I have installed two sewage systems on our farm; at one dwelling no water closet is used and the discharge from the sewer comes out on a rather flat piece of nice grassy sod, with the result of making a dank, stinking place where it becomes an open drain. The other has every usual fixture to empty into it, but the pitch of the sewer is steep and it empties into a steep ravine with lots of fall below, with the result in that case of never a smell from its open mouth in eight years of use. With all fixtures, piping and 100 feet of sewer the cost was less than $200, but I installed everything myself. In the first case a 6-inch pipe was used; in the second a 4-inch; both lines were very carefully cemented with a one to three sand and cement mortar at each joint. I have never made use of the cast-iron soil pipe, as is advised to do about houses. The argument is that tiling is likely to get broken and let sewer gas into the cellar. To help keep out sewer gas and prevent small animals coming up the sewer into the house lines I have a trap in the line just outside the house. A septic tank is what I would like to install on the next sewage system I put in.

C. C. C., Jr., Penn Laird, Va.—We put in a sewage system about ten years ago that has proved perfectly satisfactory. It drains our bath, dairy and kitchen sink. All three drain pipes empty into a 6-inch tile a short distance from the house and is safely carried to a running stream some hundred or more yards distant. Our bath and dairy pipes are 3-inch, leading to the 6-inch main pipe or tile. The kitchen pipe is only 2-inch. These are all laid 3 feet deep, in order to prevent freezing.

Our main 6-inch tile is terra-cotta in 2-foot lengths with collar. The joints were carefully cemented when laid. At the union where the three pipes enter this 6-inch tile, we used cement liberally to avoid a leak. There is only about 5 or 6 feet fall in the entire main drain tile of about 100 yards, but the drainage is perfect. It has never given us any trouble but once, and that was caused by a muskrat dying in the main line. We flushed him out with water, put a coarse screen over tile and that was the end of our trouble.

Previous to putting in our present sewage system we had a similar system made of 1-inch boards, which proved a nuisance. The inside surface was too rough to allow a smooth passage of contents and it was continually clogging. When we laid our present sewage system we were extremely careful to grade it evenly and fit the joints of tiles up snugly, leaving the inside joints as smooth as possible. We put the entire system in ourselves and were only at the expense for pipes, tiles and sinks. It is perfectly sanitary, easy to install and has paid for itself many times over.

The Septic Tank Method

A concrete septic tank solves the problem of disposing of house wastes from a modern plumbing system where a city sewer is not within reach. Such a tank is not hard to build, nor is it expensive. Once in operation, it costs little or nothing to keep in order and may be relied upon to give satisfactory service indefinitely. Usually a septic tank is built of two compartments. The first is generally called the settling chamber. The second, which is smaller than the first, contains a device known as a siphon, and for that reason is called the siphon chamber. The siphon chamber receives the overflow from the first compartment, and by means of the siphon, which is automatic in operation, is emptied at regular intervals into a tile line which leads to a disposal field where the discharges leak out through the open joints of the tile line and so seep into the soil.

The principle on which the septic tank operates is one of rotting or decomposition; that is, the solids and semi-solids which enter the first compartment from the house drain are digested or liquified by bacteria such as develop in all vegetable or animal matter when such matter starts to rot or decompose.

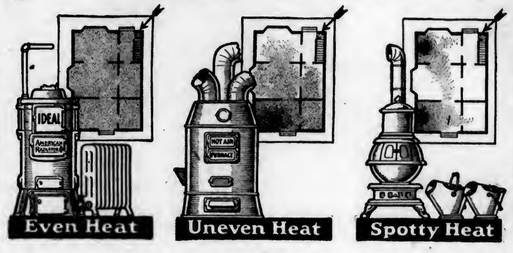
Experience has proved that in the septic tank, sewage will, if confined in a practically airtight and dark compartment, soon commence to "break up" in this manner, due to the development and action of these bacteria. These feed, so to speak, upon the solids and semi-solids in the wastes, thus converting them into gas and relatively harmless compounds. It should not be thought from this, however, that the action taking place in the tank will destroy disease germs. The discharges from the tank through the operation of the siphon must still be properly cared for to prevent them from being a possible source of disease.

Sewage must enter from the house at one end of the tank and leave at the other. A grease trap must be placed in the line from house to tank. The flow through the tank should be slow and as uniform as possible. If the flow is not slow, the solid matter will not settle, rapid flow in the center and no movement at the sides interferes with the most effective working of the bacteria that develop in the scum which forms on the liquids in this compartment a short time after the tank is put into operation. Sewage must enter the tank below the normal level of contents.

A rectangular tank is best. The depth should be not less than 4 feet below the opening of the pipe which discharges wastes into the tank. The total depth of fluids in the first compartment should be not less than 5 feet, and, where practicable, a greater depth is to be preferred. Baffle boards are usually placed in the first compartment to prevent the incoming wastes from the house from breaking up or otherwise disturbing the scum on the liquid, and also to prevent any of the scum from being carried over into the siphon chamber. After having remained in the first compartment a sufficient length of time, the solid matter which the wastes contained has been destroyed and the liquids overflow into the siphon chamber and are later drawn off to be evaporated or absorbed.

This description of septic tanks is from a pamphlet recently issued by the Portland Cement Association. Our readers who are interested in installing one of these outfits can obtain the working drawings and fuller particulars from the pamphlet, which we will undertake to secure for any one who sends a stamp for it.

RADIATOR HEATING ahead of all others—



The outline plan of the house shows heat distribution when winter wind is blowing, as shown by arrow. Notice that heat is even in all rooms with IDEAL Boiler and AMERICAN Radiators.

The above diagrams give a clear idea how your home should be heated. The "spotty" heating of stoves is disagreeable, dirty, and uncertain. Furnace heat is somewhat satisfactory, but not always to be depended upon and is wasteful of fuel. Radiator heating is cleanly, sure, safe, and the outfit lasts a lifetime.

AMERICAN RADIATORS & IDEAL BOILERS

The slight difference in first cost of Radiator heating is very soon repaid to you in the great fuel savings over other kinds of heating, the greater comfort of your whole house and the increased satisfaction and better health of yourself and family.

Buy this heat that saves the most

IDEAL Boilers will get the most heat from the fuels of any localities. Scientifically constructed and the most wonderful heat producers known—never need repair or overhauling, not necessary to have water pressure or a basement—place the boiler in side room or leanto. One fire heats the whole house and one charge of fuel will last from eight to twenty hours, depending upon the severity of the weather.

A No. 1-22-W IDEAL Boiler and 422 sq. ft. of 38-in. AMERICAN Radiators were used to heat this farm house.

IDEAL Heating outfits are made in units or sections to fit any size building and are the best investment you can make for the success of your farm. Write us or go to your dealer today and talk with him about it.

Heating book (free)

Write today for copy of our book "Ideal Heating" which is the best one published on the subject. Full of illustrations and valuable information which you should read whether your house is *new* or *old*, or large or small.

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New Farm Catalogue, Just Out!

321 Money-making farms, throughout a dozen states, described in detail with directions to go and see them. Tools, machinery, live-stock, hay, grain, corn, beans, potatoes, apples and vegetables included with many to settle estates quickly. On page 8 read about 300 acres, 10 room house, 100 ft. barn and silo with pr. horses, 6 cows, equipment and crops for $2500 for all. Less than half down. On page 26 is 136 acres, cream sold at door, and skim milk fed hogs, valuable lot wood and timber, 2-story, 9-room house, good cellar barn, large poultry house. If taken soon 14 cows, pr. horses, poultry, wagons, tools, cream separator, potatoes, apples, 50 tons hay, stove wood, grain and vegetables, all included for $4400. A dandy home farm on page 19 of 40 acres for $1400 is on main road, near creamery, 11 room house, telephone, basement barn, pr. horses, 8 cows, poultry, tools and crops all included. $1500 takes everything. Write today for your free copy of this big new Catalogue of live farm bargains. E. A. STROUT FARM AGENCY, Dept. 1200, Land Title Bldg., Phila., Pa.

TIGHT BINDING

The Women's Exchange

This is the farm women's *own* department—for them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

OCTOBER 15.—Eggs will be high this winter. What can we do now (Oct. 15) to help have a good supply? What and how do you intend to feed your hens this winter? Limit your manuscript to 250 words.

NOVEMBER 1.—What have you to say regarding the tendency of farmers to own automobiles? Is a pleasure car of any use on the farm except for pleasure riding? Are the up-keep charges high? Why don't you want to return to the buggy or "jump-seat" traveling days?

NOVEMBER 15.—What are the secrets of successful cake baking? Did you ever use a mechanical mixer? What kinds of pans do you use? What is the receipt for your favorite cake?

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

Marketing the Home Canned Products

MRS. E. E. K., Auburn, Me. — Six years ago I began canning; a year previous we had become farmers, and being inexperienced, we planted more than we could use or dispose of. I canned over 200 quarts, not knowing that there would be a sale for them, but we found a ready sale for them at a college through a friend. This gave me courage to do more the next season, and we sold over 600 quarts to a college nearer home, besides starting a business among the city people, which has increased yearly until we have canned over two thousand quarts in a single season, and it now makes a business for us the year around. We deliver twice a week, and the telephone brings us orders, so although we are three miles out we feel quite near—and this, with the sale of farm produce, keeps us busy. For the past three years we have rented, for two weeks, a space in a large department store, just before Thanksgiving. We are so near we can carry the goods with our team and do not have to pack so securely as to send away. Last season I remained three weeks, and my sales exceeded my fondest hopes. I call it my vacation. I really enjoy meeting the nice people whom I meet there, and letting them sample my jellies and good things, I learn more in exchanging ideas than in any other way. We have had orders from New York, Boston and Connecticut. At first we had the jars returned to us, but this did not always please the people, especially those far away, so we buy new jars each season.

We grow the vegetables and nearly all the fruits (peaches, some of the pears and the plums we have to buy).

I have had much to learn, and many failures, but I am learning and I enjoy my work very much. My largest day for string beans was 113 quarts (which I prepared the day before). I have three steam cookers; the largest holds 60 quarts. I made 106 glasses of jelly in one day.

I would like to tell you of my signs which I made. My husband did the carpenter work but I painted them. We have two, about a mile away, at either side of the farm, with just the name of the farm, and another here at the farm, like a large picture frame with separate boards, which can be changed and painted. This reads, now, "For sale, fruits, jellies and preserves." We are on a very high hill and when I asked my husband to put the signs on the road he joshed me by asking: "Do you think any one will come up this hill?" But they do come, and leave us nice orders.

MRS. M. B., Blanchard, Pa.—There is a very good market here for canned goods, jellies, etc. I do not believe that prices here will be any higher this year than formerly for this kind of goods, for so many more people are canning than formerly that the demand will not be any greater. I am satisfied with past prices, though, and feel that it will be better to sell in the home market at what may be lower prices, than to ship to unknown customers.

Most canned fruit sells for 25 cents per quart, and jellies are 15 cents per glass. My customers return to me my jars and jelly glasses, so I have nothing but the initial outlay for these. Dried fruit I have never sold, but dried corn is 25 cents per quart. Several years ago I shipped about four dozen jars of fruit, and about that many glasses of jelly. I shipped in strong wooden boxes with several inches of sawdust in bottom for jars to rest on, a plentiful supply between them and several inches on top again before the lid of the box was nailed on. These boxes, labeled "Glass," arrived safely at their destination. Express I have found to be the most satisfactory method of shipping fragile articles. At this time it seems to me "Uncle Sam" should "do his bit" to solve the food question by making the parcel post service equally safe for such goods.

I do not believe in ever sending goods to commission merchants in the city, who sometimes reap the rewards that should go to the woman who sweated over the stove when the thermometer hovered in the nineties. If I had no home market I would select a place where there was a demand for such articles, and where I had a friend through whom I could get in touch with a few people who would buy. I would try to have my products so good that one satisfied customer would notify others and thus automatically widen the circle.

MRS. S. M. J., Kentwood, La. — We have a small home canning outfit, and every year I put up several thousand cans of fruit and vegetables. I always take pains to have everything nice and the cans well filled. If anything is doubtful I label it for home use. We live in close proximity to several mill and lumber towns. As soon as the weather gets cool and fresh fruits scarce, I take a buggy load of samples and canvass the territory, then later on I deliver the goods, at the same time taking orders for delivery a week later. If a customer complains I always "make good," even though I doubt their honesty. One can soon "spot" imposters and pass them by. My customers never care for empty jars, so I take back all empty jars and jelly glasses. Tin cans are very scarce now, and I fear they will be scarcer another season, so I am proposing to pay 2½ cents each for all returned to me in good condition.

Many of my tins are rusty on the outside; these I paint with a golden lacquer and put on new labels. It pays best to have everything nice; make it attractive as possible, then treat each customer with courtesy, no matter if some overworked mother is inclined to be peevish, or some childish old lady is cross.

MRS. J. E. M., New Milford, Pa.—I expect to make a quantity of tomato catsup for market, and intend to solicit customers in my home town, as it is a new venture. I prefer putting up catsup in pint fruit jars and sealing same as canned fruit. I have a receipt I have used several years, and believe it to be equal to any tomato catsup made. One-half bushel ripe tomatoes, wash and slice; peel and slice 5 medium sized onions; boil until tender and strain through a sieve, then add to each 6 quarts, after straining them, 2 tablespoonfuls salt, one each of cinnamon, cloves and allspice, 1 teaspoonful black pepper, ¼ teaspoonful cayenne pepper, 1 cupful brown sugar and 1 pint good vinegar. Cook until reduced one-half.

I expect also to bottle grape juice for market, if grapes ripen before frost. Will try to protect them by covering with cotton carpet.

MRS. W. R., McGuffey, O.—For general farmers we put up a large quantity of fruits, vegetables, preserves, etc. We have a large home canning outfit and our aim, this fall as never before, is to conserve everything that grows upon the farm.

We have a local reputation for careful and honest work and therefore can dispose of all we put up, on our local markets. If we can spare it the very poor will get some of our goods, for our Master says: "It is more blessed to give than to receive."

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You have a neighbor who owns a Colt Carbide Lighting and Cooking Plant.

And this neighbor can't be far away because we have sold thirty thousand plants in eastern territory since the year 1899.

Last year we sold twice as many as we ever did before during the same period.

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Your neighbor took this reputation into consideration before he made his selection and we are sure you will do likewise before you make yours.

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Write us today for copy of written testimonials from your own neighbors.

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What Our Farm Women Ask and Answer

MRS. A. I. M., Pennsylvania, says: "In preparing chicken to cook I trim off all the bits of fat, then fry out and pour into a bowl to cool. It is fine for frying potatoes, also to add a spoonful or two to any vegetable you cook, instead of a piece of meat. Try it and see if you do not like your beans, cabbage, turnips, etc., as well as when cooked with meat."

To rid a premise of rats Mrs. H. O., New York, tells us that she has been successful by catching one alive, giving it a coat of coal tar and turning it loose again. Friends of hers who were troubled with big mountain rats which are not enticed by cheese or other rat delicacies, got rid of them by means of a nail keg and a steel trap. For a few nights at first they placed some bright nails in the keg, which seemed to attract the rats, and after they became used to the keg the trap was put in and always caught one.

"If Mrs. S. P. H. will keep one or two ugly, plain black mother cats I think she will not be troubled with rats very long. Just give them new milk night and morning and they will attend to the rats. Of course, they must be fed more than this at times, but they will ask for feed when they need it. Keep all vegetable and other bins raised from the floor and away from the wall, so there will be no places for rats to collect."

"My aunt uses chicken fat for cake shortening and considers it excellent," says Mrs. J. E. M., Pennsylvania. "She tries out the fat carefully and keeps it in sealed fruit jar.

"Will some one please give directions for making good writing ink at home?"

In reply to Mrs. L. W. T., Pennsylvania, who asks how to make White Mountain cake, Mrs. G. P. W., Pennsylvania, gives the following receipt:

One cupful butter, 3 cupfuls sugar (granulated), 1 cupful milk or cream, 9 eggs (whites) beaten stiff, 4 cupfuls flour sifted with 2 teaspoonfuls baking powder, 1 lemon rind (grated). Icing: 3 eggs (whites), 1 cupful powdered sugar spread on top and all around the sides and grated cocoanut between layers. This makes a five-layer cake. Beat the butter, then add the sugar, then milk; the eggs beaten separately; then slowly and lightly stir in the flour.

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8478.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. The waist has tucked fronts and long sleeves.

8446.—Girl's dress. Cut in sizes 6, 8, 10, 12 and 14 years. The dress is cut in one piece.

8450.—Ladies' dress. Cut in sizes 36 to 42 inches bust measure. Long or short sleeves may be used and the skirt is cut in three gores.

8453.—Girls' dress. Cut in sizes 4, 6, 8, 10 and 12 years. The dress has a one-piece gathered skirt.

8467.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. The long sleeves are finished with cuffs.

8452.—Ladies' apron. Cut in sizes 36, 40 and 44 inches bust measure. The apron closes at the back and has a 3-piece skirt section.

8458.—Ladies' skirt. Cut in sizes 24 to 30 inches waist measure. The skirt is cut in three pieces.

8451.—Children's empire dress. Cut in sizes 2, 4, 6 and 8 years. Round or square neck may be used.

8448.—Ladies' skirt. Cut in sizes 24 to 30 inches waist measure. The skirt is cut in two gores.

8473.—Ladies' kimono. Cut in sizes 32, 36, 40 and 44 inches bust measure. The kimono may be made in either of two lengths.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA

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Turn it up, turn it down. Smokes just the same! What *is* the matter with this wick, anyway?

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Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

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CHAPTER XXIII.

WEDDING BELLS.

The wedding dress was finished and a success. "I guess it'll have to be my valedictory," Persis said with ill-concealed elation. "I'm never going to beat that if I dressmake till I'm a hundred." As for Diantha, her ecstacy implied that whatever the risks attached to the matrimonial venture, they were abundantly offset by the privilege of arraying one's self in habiliments of such transcendental charm.

But of the two, the girl's happiness was the least overcast. Diantha did not realize the pathos of her ability to leave her home without a pang. Since tears are only the reverse side of joy, the bride who says farewell to her childhood dry-eyed is a legitimate object of sympathy. Diantha's unclouded happiness was significant of all that her youth had lacked.

But Persis' satisfaction was superficial. Underneath her stubborn cheer, her genial vivacity, self-reproach was astir. While she listened to the outpourings of Diantha's ardent confidence and laughed over the children's naive inquiries regarding the approaching and stupendous event, she stood a prisoner at the bar of her conscience, summoned to defend herself against the charge of injustice to a friend. And the more she pondered the question, the more advisable it seemed for her to plead guilty and throw herself upon the mercy of the court.

She recalled in extenuation of Thomas' offense that his confession had been strictly voluntary, prompted only by his own sense of honor. He might have retained the confidence and friendship he valued above all else, simply by holding his peace. Moreover his provocation had not been slight. "She looked so like a kitten," he had said of Annabel. Persis knew the look he meant, that inimitable blending of challenge and retreat, shyness and daring so commingled as to be most provocative. Of course he was no match for Annabel, poor honest Thomas.

"It's the good men they make the quickest work of," thought Persis, turning relentlessly on an uneasy pillow. "It never would have entered Thomas' head to think any harm of a married woman. A different kind of man would be on his guard against her and against himself, too. It came on Thomas like a thunderclap out of a clear sky."

Having reached the point of leniency toward her one-time lover, severity with herself was a natural sequence. "'Tain't as if I was a girl," Persis owned, in sorrowful compunction. "I'd ought to know what men are by this time, and that the best of 'em need to be braced up by some good woman's backbone." She could not escape from the painful conviction that she had failed her friend. He had turned to her for help and her hurt pride had rendered her oblivious to his need.

And pride was still to be reckoned with. Even now when she realized her fault, she shrank from extending the olive branch. Thomas loved her and had always loved her. The episode of Annabel Sinclair had not altered his loyalty by so much as a ripple on the surface. And yet to snow by a lifted eyelash or a hand held out that she was ready to let bygones be bygones seemed among the impossibilities. The generations of dumb women whose blood ran in her veins stretched out ghostly hands to hold her back from frankness. That was a woman's lot, to endure silently and leave the initiative to the man.

June came and found her vacillating and uncertain. Mystic fragrances, still whispery nights, dewy mornings, gay with flowers, were flung into the scale. And when Diantha's wedding was but two days off, Persis suddenly capitulated.

"I've always said that folks who'd let their lives go to smash for want of speaking out deserved all they got. And now it looks as if I was that sort of a fool myself, Algie!" Apparently apprehensive that common sense would again yield the field to tradition, she flew to the window. "Algie!" she shrieked.

The boy came on the run. Something in Persis' voice made him aware that the occasion did not admit of trifling.

"Algie, jump on your wheel and ride down to Mr. Hardin's store. Tell him that if it's convenient I'd like to see him this evening. Quick now."

Algie's obedience was instantaneous. With compressed lips Persis watched his vanishing figure, her color coming and going.

"Well, so far, so good. I guess now I've got up my courage to send for him I can leave the rest to luck."

Thomas came that evening, extremely self-conscious in a new suit, his air of unwonted elegance heightened by a fresh shave and with his shoes polished into almost immodest prominence. The children, in spite of their aggrieved protests, had been sent to bed with the chickens. Mary had been despatched to young Mrs. Thompson's on an errand, and the two had the house to themselves. Thomas waited for Persis to explain her summons. As she rendered him no assistance, he took the responsibility of steering the conversation.

"It looks pretty fine around here, Persis. Shouldn't hardly know the place."

"Well, there have been lots of changes, Thomas, Joel gone and all. Five children in a house change things without anybody to help 'em."

"They're nice looking children, too. That oldest boy, Algie, takes my eye."

"He'll be better looking when that cut on his lip heals up. He got hurt in a fight the other day, the second he's had in three months. I wanted to ask you what you thought I'd ought to do when he gets to fighting."

Thomas' heart went down with a thud. So this was why she had sent for him, to consult him regarding the training of the boys. He had not known how her summons had inflated his hopes until this sickening collapse. It was only by an effort that he rallied his thoughts sufficiently to answer.

"Well, I wouldn't worry about that if I was you, Persis. Seems like all young things was taken the same way.. Puppies are always squabbling, but 'tisn't that there's any hard feeling. They just want to try their teeth. Seems to me I'd be pretty worried over a boy who never wanted to fight."

Persis listened appreciatively. "Thank you, Thomas. It's a good thing for a woman who's bringing up a pair of boys to get a man's point of view now and then. I'm afraid I've kind of neglected those children this spring. I've been so taken up with Diantha Sinclair's wedding."

"She'll be a mighty pretty bride," observed Thomas, striving manfully to do his part in the conversational see-saw. "She looks a lot like her mother when—" He broke off, overwhelmed by the realization that he had introduced the one topic which should never have been mentioned between Persis and himself. Choking with mortification, turning deeply crimson as all the blood in his body seemed rushing toward his brain, he sat motionless, an unhappy martyr consumed in the fires of his own sensitiveness.

But something had given Persis a clew. She leaned forward, quite forgetful of her recent shrinking.

"Thomas, you remember what you told me about Annabel Sinclair the last time you were here?"

"Lord!" he panted, but her gaze held him mercilessly. "I'm not likely to forget it."

"What I want to know is this. How old was Annabel when—when you kissed her?"

Thomas drew out his handkerchief and mopped his damp forehead.

"Why, I s'pose she was fifteen or sixteen. She wasn't as tall as Diantha is, and I guess she was a few years younger."

Persis did not reply. When he ventured to look in her direction, she was regarding him with strange dilated eyes.

"Thomas, you said she was Stanley Sinclair's wife."

"Well, she is, isn't she? Why, you don't mean—" He interrupted himself, his look changing. "What kind of a man d'ye think I am, Persis Dale?" he challenged her angrily. "If you've known me all your life and think I'm the sort to be carrying on with other men's wives—well, I guess I'd better be going."

He got to his feet and then sank helplessly into a chair. He had never seen Persis cry before. He had not realized that she could cry. Yet without doubt those were tears upon her cheeks.

But if crying, Persis was smiling, too. His heart fluttered, and performed some extraordinary gymnastic feat, when she held out her hand.

"Thomas, I was in the wrong, I'll own it. I never favored jumping at conclusions and less than ever now. Maybe—maybe if I hadn't thought so much of you, I'd have been slower to think evil." He did not trouble himself with the feminine lack of logic indicated in her closing words. He had clasped her hand in both of his and was holding it fast, as if he never meant to let go.

"Persis—Persis, you weren't fair to me in that, but I don't lay any claim to being all I'd ought to be. There's no end of things you'd have to forgive. I don't know as I've ever told you about the time Ed Collins and I—"

A movement on the part of Persis' disengaged hand checked his confession.

"Thomas," she protested while she smiled, "if you own up to any more things, I declare I believe I'll have to even up by telling you how old I am. And that's one thing a woman don't like to mention, except, of course, to her husband."

Two days later Diantha Sinclair was married at eight o'clock in the evening. The church was crowded. Wide-eyed girls took in every detail and dreamed of acting the star role on a similar happy occasion, Complacent matrons, in their Sunday best, exchanged voluble comments. The wedding party was a trifle late, and the guests were all early, which gave opportunity for soul-satisfying gossip.

"Ain't those flowers lovely! I never saw anything to beat 'em except maybe, at Elder Larkins' funeral. They say Persis Dale went over to the Lakeview florist's in that car of hers and brought back flowers enough to fill a wash tub."

"Mis' West looks real nice in that new black silk. There's nothing like black for toning down a fat woman."

"There's Eddie Ryan in a dress-suit. Wonder if it's his'n or just borrowed. It hangs kind of baggy. Shouldn't wonder if his cousin up to Boston let him take his."

Annabel Sinclair's slight girlish figure was the center of interest until the entrance of the bridal party. She must have guessed how the tongues were wagging but her color did not fluctuate under the ordeal. At last Annabel had come to the point of assisting nature. The carmine had been applied with artistic restraint, and she had never looked lovelier, but her happiness in her beauty had vanished. To retain the admiration which was the breath of her nostrils, she must henceforth resort to artifice, covering up and hiding what would sooner or later be revealed in spite of her. She was not thinking of Diantha as she sat looking straight before her but only of her own hard fate.

"Annabel Sinclair might be the bride herself," remarked one kindly matron on the other side of the church. Beats all how she keeps her looks."

"Ain't that a handsome dress, though," sighed her companion. "She had it made in the city. But Persis Dale made Diantha's dress, and somebody who saw it, told me it was the handsomest thing she ever clapped her eyes on. Persis Dale sets everything by that girl."

If the occupants of the pews enjoyed the long wait, not so Thad West. Pale and perspiring, he looked more like a patient about to be conveyed to an operating table, than a bridegroom on the threshold of his happiness.

"What do you s'pose is wrong, Scotty?" He clutched the arm of the friend selected to stand by him in his ordeal. "It's way past time."

"Oh, well, girls are always late," returned Scotty with soothing intent. Thad thought wrathfully that it was all very well for him to take that tone. He wasn't going to be married, hang it.

"Ring all right, Scotty?"

"Sure thing." But in spite of the prompt assurance the best man's hand went to his waistcoat pocket and fumbled a long nervous minute while the perspiration trickled down Thad's spine. And then young Scott felt in the other pocket and breathed a sigh of relief. "Here 'tis."

"You want to keep better track of your dates than that," exclaimed Thad angrily. "You'll queer everything if you go feeling around in all your pockets when he's ready for the ring." His voice took

(Continued on page 343)

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A Profitable Dairy Ration

H. H. DEAN

With the coming of winter when cows must be stabled and have all their feed brought to them, the problem of what kind will give the best results should be carefully studied. A dairyman in Delaware recently wrote us as follows:

"Please suggest a ration for dairy cows for the coming winter. I have corn silage and soy bean hay. The market prices per ton on the following are: Bran, $39; middlings, $56; brewers' grains, $48; gluten, $59; hominy, $66, and corn, $2 per bu.."

The following table shows the protein and energy values in 100 pounds of the feeding stuffs given; and also the pounds of protein and energy units which can be purchased for $1 at the prices named for feeds:

Feeding Stuff	Protein and Energy Values in 100 lbs. Lbs. Protein	Energy units Therms	One dollar will buy Lbs. Protein	Energy units Therms
Bran	10.8	53	5.5	27.1
Middlings	12.0	59.1	4.2	21.1
Brewers' grains (dry)	20.2	53.38	8.4	22.2
Gluten (meal)	28.1	84.15	9.5	28.5
Hominy	6.5	81.31	1.6	24.5
Corn (dent)	7.0	89.16	1.9	24.9
Corn silage	.6	15.90	4.0	106.0
Soy bean hay	11.7	44.03	23.4	88.6

We have assumed that corn silage is worth $3 a ton and soy bean hay $10 per ton. We are not familiar with prices in Delaware for these two feeds, and if they are higher it would add to the cost of the ration, but at the prices given corn silage and soy bean hay combination furnishes protein and energy units much more cheaply than the other feeds. We would advise the use of a small amount of wheat bran, because of its good effect on the digestive system of the cow, although the brewers' grains and gluten meal furnish protein and energy units more cheaply.

The ration we would recommend is, 40 pounds corn silage, 10 pounds soy bean hay, 2 pounds wheat bran, 4 pounds brewers' grains (dried), and 4 pounds of gluten meal, this to be given in two or three feeds daily, as convenient. This ration will furnish, approximately, 3.5 pounds of protein and 17.2 energy units, or "therms," which is slightly more protein than is required by the standard, and about one therm less. The cost of the ration at the prices given would be about 36 cents per day, but with milk at $3 per 100 pounds, milk fat at 50 cents per pound, and skim milk having the value of, approximately, $1 per 100 pounds, such a ration ought to give good profit if fed to cows producing 40 pounds of milk daily, of 4 per cent. fat.

The tendency in the calculation of rations is to consider largely the protein and energy values of feeds, and at all times roughage on the farm, such as silage and hay, should be used to the largest extent possible in the economic feeding of cows.

Jerseys—the butter cows—grazing on a prominent New York State Farm

Sheep—the Farm Waste Savers

"I would not know how to do good farming without sheep," declared George McKerrow, of Wisconsin, one of the best and most widely known sheep breeders of America, upon a recent visit to the Food Administration in Washington. "Why?" he continued. "Because my sheep use up the wastes of the farm. They clean up the grass, weeds, brush and gleanings, and in so doing turn into cash what otherwise would be lost."

Mr. McKerrow knows sheep and his knowledge comes from a broad experience gained in 51 years of breeding them. His is a story filled with romance, faith and devotion to an ideal t at covers a span of years from the time an eight-year-old farmer lad, who had saved his pennies and nickels and bought an aged ewe, which in turn produced two ewe lambs, down to the present when thousands of sheep "eliminate the waste" on his 2300 acres.

"Sheep," said Mr. McKerrow, "make the most economical gains of any kind of live stock because they clean up the odds and ends. They are particularly useful on the farm in the fall of the year, for they turn into mutton the things that otherwise would not be used. At the same time they save the feedstuffs that would be given them if they did not have access to these other things."

After harvest, Mr. McKerrow's sheep are turned into the oats fields for a few hours the first day, an hour or two longer the second day, and the time gradually increased until at the end of a week they have complete possession of the fields. The lambs are permitted to enter the corn before it is cut and they clean up on the weeds and lower corn plant leaves. The lambs do not pull down the lower ears of corn as do the sheep. Roots are grown for the cattle and sheep on Mr. McKerrow's place, and after the larger roots are hauled in to storage for winter use, the sheep are turned into the

EVERY FARM

SHOULD SHOW ITS COLORS

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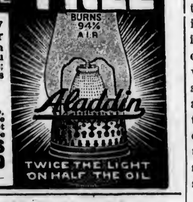

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field and eat the smaller ones that remain. Both the sheep and lambs are turned into the aftermath of the meadows and this brings them into winter quarters in good condition.

Another profitable practice on this farm is that of plowing up fields that become weedy after harvest. These fields are sown to rape and turnips, and later the sheep are turned in. They eat the rape and turnip tops with relish and will later hollow the meat from the turnip, leaving but a shell.

Mr. McKerrow has found that a frequent change of pasture is beneficial to the sheep. A 36-inch woven wire fence in 20-rod lengths is moved about, thus preventing the too short cropping of the grass, and furthermore reducing the internal parasite plague to a minimum. Water is also an important consideration, and ewes particularly should have water the same as dairy cows.

"I would not go so far as to say that there should be some sheep on every farm," declared Mr. McKerrow, "for peculiar conditions might not make it practical, but I do believe that there should be sheep on the vast majority of farms in this country. They turn waste into cash. The sort of saving that the good housewife is making in her kitchen can be practiced with corresponding effectiveness by the use of sheep on the farm.

Milk Tests Vary

The University of Missouri College of Agriculture has been investigating the causes of variation in the composition of milk for several years. This subject is of importance to the manufacturer of dairy products, to the producer and of special significance in connection with the use of milk as food for infants. The college has found several causes for variation in milk not recognized before.

It is often observed that milk is poorer in fat in summer and becomes richer again in the fall and the farmers have generally assumed this to be due to the watery condition of grass as compared with the dry feed received during the winter. Tests have shown that the cause of this is not grass feeding, but the temperature. For some reason there is a tendency for the milk to be richer in fat during cold weather and to become poorer when the weather becomes very warm regardless of the feed consumed. A second factor of importance as influencing the richness of milk is the fatness of the cow at time of freshening. A cow high in flesh at calving time gives very much richer milk for some time than would be the case were she thin.

This knowledge is now made use of by every breeder of dairy cattle who desires to make the largest possible record for milk and butter-fat production. Another interesting discovery is that when a cow is underfed that temporarily she gives richer milk rather than thinner, as might be expected. This is of great importance in connection with making tests of cows and a failure to understand this effect has resulted in wrong conclusions from many experiments conducted with cows in the past.

Potatoes as Hog Feed

When cereal foods are high, as now, and potatoes are cheap and plentiful, hog feeding of cull potatoes and any surplus of the poorer grades which might be available is profitable. The U. S. Department of Agriculture estimates that 4½ bushels of potatoes equal one bushel of corn in producing weight gains on hogs. The feeding of marketable potatoes is therefore unprofitable unless corn is worth 4½ times as much as potatoes. Culls and other unmarketable potatoes, however, can advantageously be fed to hogs for several reasons: A waste is utilized and more valuable feed is saved; transportation charges on a poor product are saved; and the potatoes marketed bring a higher price than they would if the small ones were included.

Potatoes resemble corn in composition, and this is especially true of sweet potatoes. Both corn and potatoes are poor in protein and rich in carbohydrates, thus they make fat rather than bone and muscle. The potatoes should be boiled or steamed until they form a mealy mash, which should be mixed with some other feed, such as corn meal, shorts, or bran. Only enough water should be added in the cooking to prevent burning and to make a thick mash. While some potatoes may be fed raw to add succulence to the ration, they should be given only at intervals and in small quantities. Too many are likely to cause scours.

A potato ration should be supplemented with feeds rich in nitrogen, such as old-process linseed oil meal or fish meal. Where sweet potatoes are plentiful and cheap a combination with gluten meal and skim milk makes a good ration.

In one case of experimental feeding shoats made one pound of gain for each 3.13 pounds of grain when they were allowed to do their own harvesting of raw sweet potatoes. Sweet potatoes are said to be the best root crop for pigs for fall and winter grazing in the cut-over pine lands of the South.

The meat of potato-fed hogs is equal in quality to pork from a grain ration, but the latter is likely to carry a greater finish. After cooling there is no appreciable difference in firmness of the carcass between a potato-fed and a grain-fed animal.

Stomach Worms in Lambs

Lambs troubled with stomach worms lose weight, are very unthrifty, cough, and in the last stages have diarrhoea. Unthriftiness in lambs of two to five months of age is usually due to the presence of stomach worms in large numbers.

In treating lambs thus troubled the Pennsylvania State College recommends a dose of gasoline in the proportion of a tablespoonful for every 80 pounds live weight. The usual procedure is to mix the gasoline with five ounces of cow's sweet milk to which one tablespoonful of raw linseed oil has been added. The dose should be administered on three consecutive mornings, the feed being withheld the night before.

Medicine may best be administered to lambs through a rubber hose with funnel attachment. The hose should be placed in the back of the mouth and the medicine poured in through the funnel, which may be elevated so that the dose will run down properly. It is better to have the lamb stand on its feet than to put it on its hindquarters when dosing.

Changing pastures will reduce the chance of stomach worm infection to a minimum.

A Rich Cream Means More Feed for Young Stock

In skimming 100 pounds of 35 per cent. cream, 15 more pounds of skim milk is kept on the farm than when the same amount of 20 per cent. cream is taken. This saving can be accomplished by a turn of the cream screw, and at present feed prices is well worth the effort required. More skim milk on the farms also means more calves raised to furnish meat and milk for all. Milk producers are paid for the butter-fat in cream, not for the water and other constituents.

Queries Answered

Compost, etc.—F. W. C., Washington, D. C., asks us: "Where can I get information on making compost for truck? If a bulletin, give number. What is best to use to overcome ill effects of auto oil from using horse manure picked up from streets by hand sweepers? Would kerosene emulsion (used by spray to keep dogs and chickens from tearing down compost) damage next spring's crops?"

For treatise on composting, get Farmers' Bulletin No. 21. Write to the Division of Publications, Department of Agriculture, Washington, D C., and ask for it. Better stop using the street manure, as I have done. There is nothing you can add to it that will cure the effect of the oils and gasoline. Better not use the kerosene emulsion compost, but keep the dogs and chickens out by good fencing.
W. F. M.

Storing Beans.—W. A. D., Connecticut, writes us: "I have about 24 pounds of beans for winter use, that is, without the pods. Will you please tell me how to keep them?"

There is no difficulty in keeping the beans, as in your climate they may not carry the weevils that trouble them here. After shelling them let them be exposed to the sun until perfectly cured and then put them into a flour sack and hang them up where they will not be attacked by rats or mice. If weevils appear, put them in a box that can be shut up tight and pour two or three tablespoonfuls of carbon bisulphide in a saucer and set it on the beans and close up tight until it has evaporated. The fumes will sink through the beans and kill every living thing in them, and no damage will be done to the beans. But do this away from the dwelling and away from any fire, even a cigar, for the fumes will explode quicker than gasoline. After all has evaporated open up and sun the beans for a day and put them back in the sack.
W. F. M.

Tile Drainage.—R. M. M., Pennsylvania, writes: "Would you kindly give me a little information on ditching? How deep should it be made and how far apart? Do you know where I can secure any literature on ditching? My farm is in western Pennsylvania. The land lies so flat that much of it needs draining and the people in this community have done very little tiling."

Tiles are generally laid from 2½ to 4 feet deep, depending on the nature of the soil and the kind of grade. The deeper the tiles up to certain limits, the more effective they are, since they drain a larger area and allow deeper rooting of the crops. Ordinarily the laterals are laid about 4 rods apart, sometimes as far as 100 feet apart. The round, burned tiles are much better than stones for laying the drain. Stones will work very well for a while, but they will eventually become clogged. You can get literature on tile drainage by writing to the U. S. Department of Agriculture, Washington, D. C., and from the Pennsylvania Experiment Station, State College, Pa., The Maryland Experiment Station, College Park, Md., has recently issued a bulletin on this subject.
A. E. G.

Blackhead in Turkeys.—E. A. S., New York, writes: "Will you please inform me if there is any sure remedy for blackhead in turkeys? If so, where obtained?"

There is not, positively. Preventive measures adopted early in the life of the poults give a greater degree of success in bringing to maturity the greatest number of turkeys. Usually cleanliness, complete sanitation as far as can be, the use of new ground or the sterilizing with lime and cultivation of used ground are two factors of prime importance. Incubator hatching is also good as a means of prevention. The infected parent turkey hen that laid the eggs being thus eliminated as a menace and therefore lessening danger of contact with the young birds. Occasional doses of olive oil, 5 drops to a 10-day-old poult, ½ teaspoonful at two months and a teaspoonful at three months, will aid in nutrition and alterative function.
F. V. L. T.

Renting Farm on Shares.—E. S., Ohio, says: "I have been a subscriber and reader of your valuable paper for the last thirty years. I would like to ask you a few questions. I expect to rent my farm and I will furnish everything and the man will do the work; raise the crops, feed the hogs, milk the 1 give him? What share of the increase of the hogs and cows should I give him?"

In renting a farm, the owner furnishing everything and the tenant simply doing the work it is rather hard to say what his share of all the products should be. If he gets a certain share of the grain crops and other crops grown, and the hay, some of this grain and probably all the hay will be fed to cows and work stock, and if the tenant gets a share of the milk and butter, he should not get a share of the forage fed, as that is part of the expense of production. It is the same case with the young stock raised. Hence it is rather hard to say what is fair. In such a case I think that the best solution will be to pay the man what his labor is worth and not make a share business of it at all. For the grain crops alone I would say that one-fourth would be fair, and the same would answer for the butter and the live stock after deducting one-fourth of the value of the feed used.
W. F. M.

[Changing conditions today will undoubtedly bring the share renting problem up in many places. Can any of our readers offer a better solution for M. E. S. than the one given?—Ed.]

Other People's Business

(Continued from page 340)

on a tone of appeal. "Haven't you got an extra handkerchief, Scotty? If I keep on at this rate, my collar—"

"You just keep quiet and I'll mop you up a bit," returned the obliging Scotty, but his friendly ministrations were interrupted by a blood-curdling whisper from the bridegroom.

"My God, here they come!"

There was no doubt about it. The little organ was wheezing out the wedding march as if it meant to be equal to the occasion if this proved its swan-song. The ushers were advancing up the aisle two by two. With drooping heads and measured steps, the bridesmaids followed, and then came Diantha on her father's arm. The little flutter that went over the waiting assembly was chiefly an involuntary tribute to her girlish grace and beauty, though the dress, too, came in for its share.

"Might have been bought in Paris for all anybody could tell," was the assurance passed from lip to lip. Clematis was proud of that wedding dress.

Stanley Sinclair, very straight and handsome as he moved up the aisle, looked down on the bright head near his shoulder and remembered that other girl who twenty years before had come up the church aisle to meet him at the altar. He had learned long before to sneer at his own lost illusions, but singularly enough, never until this moment had it occurred to him to wonder what her dreams might have been that far-away June day. To his discomfiture the query brought a pang, and he had thought himself beyond such weakness. The petrified heart has a certain advantage over that of flesh, though possibly the ache which proves it human is a ground for felicitation.

Ten minutes later Thad was wondering what he had been afraid of. Why, it was nothing. He could hardly believe that a matter so momentous could be disposed of in so few minutes. And yet it was true, and Diantha's little hand was in his, to have and to hold till death did them part.

Diantha's composure throughout the ceremony had suggested that being married was an every-day matter to a person of her wide experience. Her poise and self-possession were the occasion of wondering comment among the many who were hardly able to realize even now that she had really grown up. It was not till the reception, when Persis with Thomas following bashfully in her wake came up to proffer her good wishes, that Diantha relapsed into youthfulness. She flung her arms about her old friend's neck and kissed her tumultuously.

"Darling Miss Persis, how perfectly lovely you look! Did you get that beautiful dress just for my wedding?"

The composition of Persis' reply apparently took a little time. She did not speak for a minute.

"Yes, I made it for your wedding," she returned at length. "But I used it for my own, too. Thomas and I slipped over to the minister's after supper and got married. So we'll both wish each other joy, my dearie."

It was a shock, of course, but Clematis was getting used to that where Persis was concerned. And Mrs. Hornblower voiced the feeling of more than herself when she commented on the affair at the next meeting of the Woman's Club. Persis was not present. She and Thomas had gone on a wedding trip to the seashore, and taken all the children.

"It's a kind of back-handed way of getting a family," said Mrs. Hornblower. "Picking up one child here and another there, and then winding up with a husband. But I must say it'll take a load off my mind to see a man at the head of Persis Dale's pew."

(*Continued next issue.*)

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The Practical Farmer

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Opportunities Today for Dairymen

By H. H. DEAN

THE world is short on milk and milk products. The last International Market Report of Milk and Milk Products, published by the Swiss Agricultural Association, says: "All districts report a decrease in the milk supply in comparison to that of the same period of last year. The decrease was accentuated by dryness and the sale of a large number of milch cows to the armies and the civil population in order to provide them with meat. Owing to the increasing difficulties of supplying the population with food, the States are compelled to take energetic measures with a view to stimulate the production, to control the trend of prices and to regulate the consumption and manufacturing of milk and dairy produce. On the whole, the price situation is very firm, although the rise of prices may in future be slower on account of the disturbed conditions of transport and the measures taken by governments."

This is the conclusion reached after a survey of reports from all the leading dairy countries of the world. It may be called a world-wide view by the experts of a neutral nation. In this conclusion there is every encouragement for the dairymen of America. Keeping this in mind, what are some of the opportunities for American dairymen?

OPPORTUNITIES IN BREEDING DAIRY CATTLE.

The need for better dairy cows and more of them, was never so great as it is today. With feed and labor so expensive, it does not pay to feed and care for poor cows. Where to draw the line between payers and non-payers is a somewhat difficult problem. If all the milch cows which ought to go to the meat market were sent there, the shortage of milk and its products would be much greater than it is. Many dairy farmers continue to milk cows, about whose profitableness they are very much in doubt, for the reason that they cannot, at reasonable cost, put better cows in their places. Up to the present time breeding cows appear to be largely a gambling proposition. While it is true that certain animals seem to reproduce large milkers with a fair degree of certainty, we naturally hear a good deal about the heavy producers and not much about the inferior ones. Many breeders have paid high prices for animals in hope of making marked improvement in the milking quality of their stock, but in many cases the results have been disappointing. It seems impossible to guarantee that an animal will be a stock improver when placed at the head of a herd. Very often he is a *de*-grader, instead of an *up*-grader. Right here is a place where it would seem that the government, or some other strong financial agency, could help very much by placing animals of known, good stock-getting qualities at the service of dairymen. Hundreds of good dairy bulls are sacrificed yearly because no one seems to be able to work out a plan whereby these animals may continue as useful herd-headers. In cases where the service fee of an animal is so high that the ordinary breeder of dairy stock cannot finance the undertaking, some way should be provided for assistance, so that these animals may be utilized to the fullest extent possible. It is a national asset and should be so considered.

However, for the great majority of dairy farmers, the most practicable plan for improving dairy stock is for a few farmers to form an association, purchase the best male animal possible, of the breed favored, then rear all the heifer calves practicable, from the best cows. In the case of pure-bred stock, a limited number of male calves may also be reared, but the emphasis should be placed on the female portion of the herd, with a view to obtaining a milking herd which averages not less than 8000 to 10,000 lbs. milk each, annually, containing from 300 to 400 lbs. milk fat. The minimum yearly standard may not be less than 6000 lbs. milk or 250 lbs. milk fat.

OPPORTUNITIES IN FEEDING.

Given a good cow by proper breeding, the next step is to feed her economically. To some, this means seeing how little can be fed to a cow, while to others it means stuffing a cow to the limit with all kinds of expensive feed—cost not considered so long as a record may be broken.

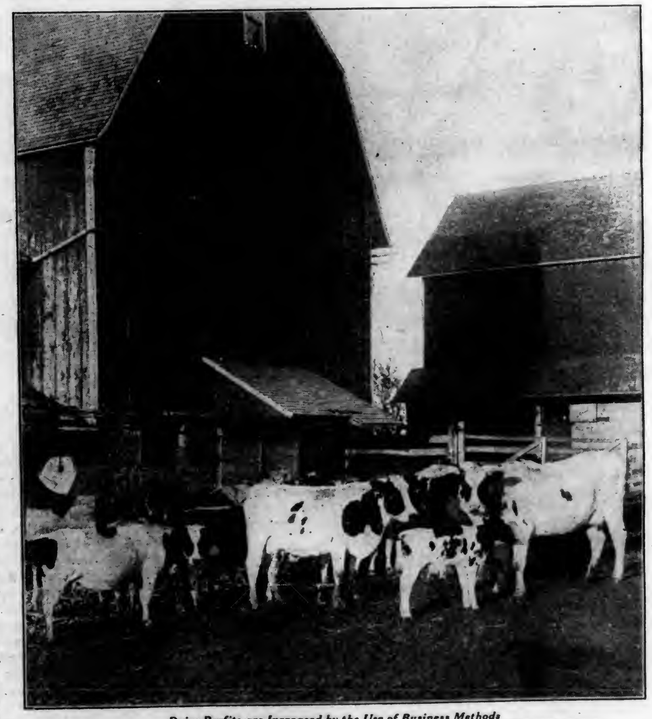
The wise feeder studies each cow, studies also the composition and cost of feeds, and then makes some calculations on the cost of feed given to a cow and the value of her product. In these times of excessive cost of feed of all kinds, the dairy farmer cannot afford to "throw feed at a cow" regardless of "value received."

This is a problem which every feeder of dairy cattle must work out for himself, on his own farm and for his own locality, as conditions differ on nearly every dairy farm and feed prices vary considerably in different parts of the country. However, there are two or three general principles that each and every feeder should bear in mind. First, feed all the roughage possible and grow this largely on the farm. It is a good plan to "grow all you feed and feed all you grow." There are exceptions, however, to all rules. It may pay at times to sell oats or barley and buy brewers' grains, or gluten meal, or cotton seed meal, depending on the relative prices of these feeds, but before doing so, a knowledge of the composition of feeds and their relative feed values is necessary.

It is now pretty well recognized that outside of palatability, the two chief things which determine the relative value of feeds, are "digestible protein" and "energy units." In this connection it will be worth while for dairymen to study carefully Bulletin No. 459, U. S. Department of Agriculture, Washington, D. C., and Circular No. 73, New Jersey Experiment Station, New Brunswick, N. J.

Feed a good cow liberally, especially of succulent roughages like corn silage and roots; and also protein-bearing, bulky, dry feed, such as Red clover, alfalfa

(Concluded on page 357)



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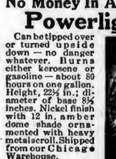

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The Practical Farmer

PUBLISHED CONTINUOUSLY SINCE 1855

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Opportunities Today for Dairymen

By H. H. DEAN

THE world is short on milk and milk products. The last International Market Report of Milk and Milk Products, published by the Swiss Agricultural Association, says: "All districts report a decrease in the milk supply in comparison to that of the same period of last year. The decrease was accentuated by dryness and the sale of a large number of milch cows to the armies and the civil population in order to provide them with meat. Owing to the increasing difficulties of supplying the population with food, the States are compelled to take energetic measures with a view to stimulate the production, to control the trend of prices and to regulate the consumption and manufacturing of milk and dairy produce. On the whole, the price situation is very firm, although the rise of prices may in future be slower on account of the disturbed conditions of transport and the measures taken by governments."

This is the conclusion reached after a survey of reports from all the leading dairy countries of the world. It may be called a world-wide view by the experts of a neutral nation. In this conclusion there is every encouragement for the dairymen of America. Keeping this in mind, what are some of the opportunities for American dairymen?

OPPORTUNITIES IN BREEDING DAIRY CATTLE.

The need for better dairy cows and more of them, was never so great as it is today. With feed and labor so expensive, it does not pay to feed and care for poor cows. Where to draw the line between payers and non-payers is a somewhat difficult problem. If all the milch cows which ought to go to the meat market were sent there, the shortage of milk and its products would be much greater than it is. Many dairy farmers continue to milk cows, about whose profitableness they are very much in doubt, for the reason that they cannot, at reasonable cost, put better cows in their places. Up to the present time breeding cows appear to be largely a gambling proposition. While it is true that certain animals seem to reproduce large milkers with a fair degree of certainty, we naturally hear a good deal about the heavy producers and not much about the inferior ones. Many breeders have paid high prices for animals in hope of making marked improvement in the milking quality of their stock, but in many cases the results have been disappointing. It seems impossible to guarantee that an animal will be a stock improver when placed at the head of a herd. Very often he is a *de*-grader, instead of an *up*-grader. Right here is a place where it would seem that the government, or some other strong financial agency, could help very much by placing animals of known, good stock-getting qualities at the service of dairymen. Hundreds of good dairy bulls are sacrificed yearly because no one seems to be able to work out a plan whereby these animals may continue as useful herd-headers. In cases where the service fee of an animal is so high that the ordinary breeder of dairy stock cannot finance the undertaking, some way should be provided for assistance, so that these animals may be utilized to the fullest extent possible. It is a national asset and should be so considered.

Dairy Profits are Increased by the Use of Business Methods

Keeping only the best producers, having comfortable, but not elaborate quarters and proper labor saving equipment, will materially reduce costs this winter.

However, for the great majority of dairy farmers, the most practicable plan for improving dairy stock is for a few farmers to form an association, purchase the best male animal possible, of the breed favored, then rear all the heifer calves practicable, from the best cows. In the case of pure-bred stock, a limited number of male calves may also be reared, but the emphasis should be placed on the female portion of the herd, with a view to obtaining a milking herd which averages not less than 8000 to 10,000 lbs. milk each, annually, containing from 300 to 400 lbs. milk fat. The minimum yearly standard may not be less than 6000 lbs. milk or 250 lbs. milk fat.

OPPORTUNITIES IN FEEDING.

Given a good cow by proper breeding, the next step is to feed her economically. To some, this means seeing how little can be fed to a cow, while to others it means stuffing a cow to the limit with all kinds of expensive feed—cost not considered so long as a record may be broken.

The wise feeder studies each cow, studies also the composition and cost of feeds, and then makes some calculations on the cost of feed given to a cow and the value of her product. In these times of excessive cost of feed of all kinds, the dairy farmer cannot afford to "throw feed at a cow" regardless of "value received."

This is a problem which every feeder of dairy cattle must work out for himself, on his own farm and for his own locality, as conditions differ on nearly every dairy farm and feed prices vary considerably in different parts of the country. However, there are two or three general principles that each and every feeder should bear in mind. First, feed all the roughage possible and grow this largely on the farm. It is a good plan to "grow all you feed and feed all you grow." There are exceptions, however, to all rules. It may pay at times to sell oats or barley and buy brewers' grains, or gluten meal, or cotton seed meal, depending on the relative prices of these feeds, but before doing so, a knowledge of the composition of feeds and their relative feed values is necessary.

It is now pretty well recognized that outside of palatability, the two chief things which determine the relative value of feeds, are "digestible protein" and "energy units." In this connection it will be worth while for dairymen to study carefully Bulletin No. 459, U. S. Department of Agriculture, Washington, D. C., and Circular No. 73, New Jersey Experiment Station, New Brunswick, N. J.

Feed a good cow liberally, especially of succulent roughages like corn silage and roots; and also protein-bearing, bulky, dry feed, such as Red clover, alfalfa

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INTENTIONAL SECOND EXPOSURE

Supplying Crops with a Balanced Ration

L. L. RUMMELL

PHOSPHORUS is the keystone in the fertility arch. Why? Because the average soil has little of it, and it is carried off the farm in grain, in milk and in the bones of animals. Manure is therefore low in this element and to be most effective must have some phosphatic carrier added to it. During these times of high-priced feeds, costly fertilizers and food and labor shortage, it is fitting that more than the usual attention be given the reinforcement of this by-product of the stable.

The average loam soil contains in the first seven inches over an acre about two thousand pounds of nitrogen and thirty thousand pounds of potassium, but only about a thousand pounds of phosphorus. There are some variations, of course, from the figures for different soil types. For example, a black swamp soil is exceedingly rich in nitrogen, and, like a sandy soil, is low in potassium. All soils, however, are low in phosphorus.

Such circumstances would be satisfactory if crops fed on the elements in the proportions in which they occur in the soil; but unfortunately farm grains make a relatively larger drain on the supply of phosphorus. A 75-bushel crop of corn removes about 20 pounds of phosphorus, a 40-bushel crop of wheat 10 pounds, and a ton of clover about 5 pounds. Phosphorus occurs chiefly in the grain, and hence is the element that is sold off the farm in large quantity.

Farm live stock and their products likewise draw on the phosphorus reserves of the soil indirectly because animals retain a part of the fertilizing elements in their rations. Growing animals utilize more of the feed constituents to build their bodies than is needed by mature animals. The manure from growing pigs may contain as much as an eighth less of the phosphorus as was in their ration. Cows in heavy milk flow may return but three-fourths or less of the phosphorus in the feed they eat.

These facts will explain, in part, why manure lacks phosphorus and why the addition of this element to manure is highly profitable. A ton of ordinary barnyard manure contains approximately 10 pounds of nitrogen, 2 pounds of phosphorus and 8 pounds of potassium. How different this analysis is from the usual fertilizer formula, such as one having 1 per cent. of nitrogen, 8 per cent. of phosphoric acid and 1 per cent. of potash. The fertilizer manufacturers realize that for most soils and crops the largest part of the fertilizer must be phosphorus because it returns the greatest dividends. The same policy must be adopted to get the most from manure.

That manure cannot give greatest returns by itself without phosphorus is shown by the yields from two plats of ground at the Ohio Experiment Station. The same crops are grown in the same rotation on both plats and both are treated exactly alike with this one exception: One gets only nitrogen and potassium, while the other receives these two elements with phosphorus in addition. This extra phosphorus, costing $2.60, has raised the value of the increase in crops by $28.21. This is about what may be expected to happen when manure is reinforced with phosphorus.

To supply this necessary phosphorus to manure two means are open to the farmer, namely, acid phosphate and raw rock phosphate. Of these materials acid phosphate has proved superior under conditions where freight charges are a relatively large part of the cost of the fertilizer. This material is made by adding sulphuric acid to an equal weight of raw rock phosphate (floats). The percentage of phosphorus in the acidulated material is about half that of the raw rock, but the solubility of the fertilizer is greatly increased by this process. Acid phosphate, therefore, costs more than the raw rock, and freight is also higher for the same quantity of phosphorus. While the raw rock is highly profitable, acid phosphate generally produces sufficiently greater increase in crops to offset the larger cost. Wheat yields for 18 years have risen from 21.4 bushels per acre from manure alone, to 26.8 bushels from manure and acid phosphate in a three-year rotation of corn, wheat and clover at the Ohio Station. Eight tons of manure is applied to corn preceding wheat. Acid phosphate is used at the rate of 40 pounds to the ton of manure.

The 320 pounds of acid phosphate would now cost about $3.20. It produced 5.4 bushels of wheat worth $10.80, at $2 per bushel. The corn yield was also increased 9.2 bushels, now worth at least $9.20. Clover was increased 887 pounds, worth $5.32 at $12 per ton. The investment of $3.20, therefore, returned $25.32, or eight times the cost of the fertilizer by the increased crop yields. Raw phosphate rock in the same comparison returned $22.98 from the same rate of application. This year the land receiving yard manure and acid phosphate yielded 4.8 bushels more wheat per acre than the land to which manure and raw rock was applied.

This field also shows how great is the value of manure under present conditions. The 8-ton application here has produced 21.2 bushels of corn, 9.6 bushels of wheat and 1132 pounds of hay more than unmanured land. This increase would be valued at the prices just given, at $47.35, or nearly $6 for a ton of manure. Surely manure cannot be wasted this year without serious reduction in our food production, and its full value can never be realized until acid phosphate or raw phosphate rock is added to it.

These fertilizing materials are ordinarily added at the rate of 40 pounds to the ton of manure. They can be spread over the manure in the shed or at the time of hauling, or sprinkled over the stable floor behind the animals. About a pound to a thousand pounds live weight of the animals would be used in the latter case.

Sixty-Two Bushel Corn Crop Per Acre Compared with Twenty-Six Bushel Crop
Eight tons of phosphated manure on the limed land at the left made this difference of 36 bushels in an Ohio experiment.

This phosphated manure may be spread over the wheat fields in case no fertilizer or manure was used at seeding time. Another common practice farmers here find practicable is to use the phosphatic material during the winter in the stable or shed, and then to spread the manure in the winter or spring on ground that is to be plowed for corn.

Ohio.

Profitable Ideas on Fall Field Work

A. E. GRANTHAM

AT this season of the year no time can be more profitably spent by the grain farmer than that devoted to the selection and care of seed corn. While a fertile soil and thorough cultivation are necessary in crop production, yet the quality of seed very largely determines the yield. That it pays well to select carefully, seed corn in the fall, is proved by the fact that the best corn growers in the "corn belt" are following this practice. The method is entirely beyond the experimental stage, and today thousands of bushels of seed are prepared in this way.

The primary object in selecting seed corn is to secure ears which when planted will produce the maximum yield of grain. This is accomplished by choosing the best ears for seed and thoroughly drying and storing so that they will retain their vitality unimpaired. Fall selection of seed corn affords the grower the opportunity of selecting ears from those plants which are most productive, and which at the same time possess the most desirable characteristics. Large ears do not always indicate a productive strain of corn. When selecting seed from a crib or pile of husked corn the large ears are generally chosen. Many of these come from single stalks in a hill, where the plant has had some special advantage in an extra amount of plant food, sunshine or moisture. The seed ears should come from those stalks which have the competition of other stalks in the same hill and where the stand is perfect. Select ears from stalks of moderate height, with a broad base, tapering gradually to tassel. The plant should be vigorous, have a large leaf development, stand up well and bear its ear at a convenient height for husking. The shank should be of medium length and strength.

Corn at husking time contains about 25 per cent. moisture in the kernel and cob, so that it requires several weeks under favorable conditions to dry it thoroughly. Seed corn is often injured by improper methods of drying and storing. It is most liable to injury the first two months after husking. It should be stored at once in a dry, well ventilated place and in such a manner that each ear will have free circulation of air. If this is not done its vitality is almost sure to be injured by molding, fermenting, growing or freezing. Newly gathered corn should never be stored in boxes, barrels or sacks, nor in a warm room, as it is likely to heat and sprout. A very good place for drying is in a well ventilated attic or loft, taking care to close the room at night or during wet weather. After the seed is dry it should be kept where it will not gather excessive moisture, as it will absorb enough water to be injured by freezing. Any method by which the corn is dried quickly and kept dry will maintain its vitality.

THE CARE OF CORN STOVER.

The value of corn stover as a feed is becoming better understood. Although a by-product of the corn crop, stover takes a prominent place in the economy of the farm. Well cured stover is almost equal in feeding value to timothy hay. The quality of the stover is determined quite largely by the maturity of the corn at time of cutting. Cut too green or too ripe, the corn does not produce stover of the greatest feeding value or palatability. Corn cut when the husks are beginning to turn color or when the lower blades have become dry, makes the best feed. The season also is a factor in determining the quality of the stover. A late, warm, dry autumn generally results in allowing the corn plant to mature normally. The dry weather favors the retention by the plant of its full feeding value. It is well known that stover allowed to stand exposed to the weather loses much of its palatability and is not so readily eaten. The same is true of corn before it is husked. Excessive wet weather seems to dissolve out from the blades certain soluble salts, elements which affect the palatability of the stover, and probably the feeding value.

As soon as the corn is husked provision should be made to protect the stover from the weather. This is done generally by ricking the stover, or sometimes by storing in barns. The latter method is especially desirable if there is available room. There is comparatively little waste in storing and feeding stover handled in this way. The preservation of the quality of the stover is the point to keep in mind. In order to economize space in storing, stover is often shredded. The only objection to this method seems to be that the shredded stalks will mold or spoil if wet or not thoroughly cured. Shredding must be done rather late in the fall to insure thorough dryness. There is much to commend this method of storing corn stover. The finer portions of the plants are eaten by the stock, the coarser pieces being used for bedding. The shredded refuse portions, being short, enable the manure to be handled easily.

APPLY GROUND LIMESTONE IN THE FALL.

The late fall offers a good opportunity for securing and applying ground limestone. Since limestone acts

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.
EDWARD T. WALKER, Managing Editor
THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS
W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE
F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES
J. C. Billingslea, 119-123 W. Madison St., Chicago.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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Statement of the ownership, management, etc., required by the Act of Congress of August 24, 1912, of The Practical Farmer, published semi-monthly at Philadelphia, Pa., for October 1st, 1917.

State of Pennsylvania... } ss.
County of Philadelphia }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Edward T. Walker, who having been duly sworn according to law, deposes and says that he is the publisher of the Practical Farmer and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, to wit:

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(*Signed*) EDWARD T. WALKER, Publisher.

Sworn to and subscribed before me this 25th day of September, 1917.
(SEAL) (*Signed*) ALBERT M. ROTH, Notary Public.
Commission expires January 23, 1919.

OCTOBER 15, 1917

A Farmers' Era

WE have it on no less authority than The New York Journal of Commerce (a paper whose interest in the farmer is limited to how he can serve city business interests) that "This is to be a farmer's year." From such a source this is a pretty significant statement, and a little consideration of the fact will convince us that not only is this statement true, but that it might be broadened into "This is the beginning of the farmer's era."

War is an awful thing, and the war that is now waging is the most awful of all wars in history, but when it is all over and we and our allies have "made the world safe for democracy" we will find that our own economic conditions have undergone a considerable change, and we think for the better. Of these economic changes the one of the greatest importance to us is the new position which the farmer is beginning to occupy in the business and social scales of the nation—a position which we believe peace will find him firmly established in. That the farmer is the foundation of our national structure is a platitude which politicians have harped on when they wished to secure our votes, and "big business" has prated of when they wished to jolly us; but in their hearts they have not believed it—or if they did their actions have belied their words. But under war conditions the climbing prices of food commodities and the threatened lack of enough food to go around has brought our citizens in every station of life to a realization of the importance of the farmer to the very existence of the people and to his position as a factor in the waging of the war; the resulting appeal to the farmer for increased production during the past season, has been answered by him in so far as he was able to answer it, but his inability to produce all that was desired and apparently expected of him has brought home forcibly the handicap under which he labors; for the first time our city brethren are waking up to the fact that the much-talked-of feat of "making two blades of grass grow where but one grew before" is not dependent alone upon the farmer's energy and knowledge of his business, but also upon his ability to get sufficient help to run his farm at a wage consistent with the service rendered and the price of the product, upon his opportunity to buy seed, implements, fertilizer and his other necessary supplies at a price consistent with what they are able to earn for him, and finally upon his securing a price for his products which will allow him something more than a bare living out of his calling. Not only is the average citizen beginning to wake up to these facts, but the Federal Government itself is seeing the light, and the appointment of a food administrator is not alone for the protection of the consumer, but for the benefit of the producer as well.

In a recent address in Chicago before a body of editors and publishers of the country's farm papers, Mr. Herbert Hoover, United States food administrator, made the statement that "even if this war had not come we were in a few years due for an economic revolution; for our productive capacity in foodstuffs has fallen behind our productive capacity in industry," and farther he said, "therefore, if I interpret the signs correctly, the farmer is coming into his day and it is the duty of all of us to support him." If the Government can be made to see these points as well as its food administrator sees them, its oversight of marketing problems and, to a certain extent, of price regulation of farm products will not cease with the end of the present war, but the farmer will continue to be given a square deal and a chance to thrive and enjoy life in the same degree as his equally industrious and ingenious city brother. When once the people—and that means the Government—become firmly convinced that it is a mistake to "kill the goose that lays the golden egg," and see of a truth that the farmer is the most important nugget laying "goose" in the whole social strata, a golden era has begun for the farmer. We believe the war is opening the eyes of the blind and that the golden era has actually begun.

Dairying Coming Into Its Own

THE present war is responsible for many conditions which only a few years ago would have seemed impossible. For instance last year, that is, the fiscal government year ending June 30, 1917, the exports of condensed milk were 259,102,213 pounds, whereas during the three years before the war they averaged only 17,792,579 pounds. These figures compiled by the U. S. Food Administration show that considerably over half of this milk has gone to the allies. Cheese and butter exports have also greatly increased. Seventeen times as much cheese and six times as much butter was sent abroad last year as was sent annually during the three pre-war years. We have been inclined to think of Holland as a milk producing country, but it has taken practically 85 per cent. of all the condensed milk that has been shipped to European neutrals, although the authorities feel certain that a large proportion of it reached Germany through indirect channels.

The foregoing facts only help to bear out Mr. Dean's contention on page 357 that the opportunities for American dairymen were never greater than they are today. The dairy herds in the European countries at war are being rapidly sacrificed to supply the demand for meat, and Holland will be forced to slaughter some of its animals if the embargo continues to keep fodder out of that country. The condition of the dairy situation at home is too well known to need elaboration here. While the government's figures show that the number of dairy cows in this country per 100 population is 22.1 compared with 22.3 in 1911, six years ago, we know that there has lately been a great weeding out in the dairy districts and there is a strong demand for cows with the ability to convert at a profit the high priced feeds of all kinds into dairy products. Thus it seems that the present and future market for dairy products and the cows which make them have never been better and the men who have had the courage to stay with the business during its trying times are being, and will continue to be, rewarded.

A Practical Way to Help

WE are in the midst of the campaign for subscriptions to our Government's Second Liberty Loan and we hope and believe that our readers on the farms in the Middle Atlantic States will do their part in meeting the nation's appeal for financial support in waging our righteous war. We have heard it said that the farmers of America took but a small part of the first Liberty Loan, the inference being that their response to the appeal for financial help in waging the war was a disappointment, even though their answer to the appeal for increased food production was gratifying; we have not at our command the figures to either prove or disprove this charge, but we appeal to our people to prove beyond a doubt in the Second Liberty Loan that the farmer's pocketbook is as generously offered to the support of his country as his muscle and his sentiment. Aside from the appeal to patriotism which the present Liberty Loan makes, it is not to be overlooked that in rate of interest (4 per cent.) and absolute security it offers an exceptionally sound and profitable investment opportunity. Any bank in any town in the land will take your subscription and secure your bonds for you without service charge.

The "P. I. O." Club

IT is a pleasure for the Editor to call attention on this page to our new department for farm boys and girls, "The P. I. O. Club," which is announced on another page. We hope that not only will our boys and girls find much pleasure and happiness in this club, but that the fathers and mothers will find it helpful both in amusing and developing their children. "Uncle George," the gentleman in charge of this department, has had a long and successful experience in boys' and girls' work and we believe he will hold the interest and gain the affection of our boy and girl readers. We ask the help and co-operation of fathers and mothers—especially mothers—in our effort to make the club a popular and successful one, realizing that it is only with this co-operation that the best results can be attained. Please urge your children to apply immediately for membership.

A Story Worth Reading

OUR readers will be interested in the announcement that in the next issue of The Practical Farmer (November 1st), will begin a new serial story by Irving Bacheller, author of "Eben Holden," "D'ri and I," "Darrel of the Blessed Isles," etc. This new novel, "The Light in the Clearing," is Mr. Bacheller's latest, and in many ways, his most important, work. It's action takes place for the most part on a farm and in a country village in northern New York State, in the thirties and forties of the last century, and presents a fine picture of the character and ways of our sturdy ancestors of that generation. A prominent character is Silas Wright, New York's famous Senator and Governor, and a leading national spirit in the politics of his time. The story is filled with a rugged uprightness and patriotism which is an inspiration to us in these stirring days when the call is so loud for a manifestation of the same characteristics in this generation. Though quite a different kind of story, we believe our readers will enjoy it quite as much as they have "Other People's Business," the serial which is concluded in this issue.

Bulletin Helps for Farmers

Housewives will be interested in Farmers' Bulletin No. 861, entitled, "Removal of Stains from Clothing and Other Textiles." It consists of 35 pages and contains a list of 88 different stains and methods of removing them from various kinds of fabrics.

"Saving Vegetable Seeds for the Home and Market Garden," is the subject of Farmers' Bulletin No. 884. While a little late for some kinds of seed, there is still time to save some for next year's planting, according to the plain and explicit directions laid down in this 16-page bulletin.

The Division of Publications, U. S. Dept. of Agriculture, Washington, D. C., will supply either.

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A Home Storage Pit

D. WATSON ATKINSON.

A friend of mine in southeastern Pennsylvania prides himself upon having good apples later in the spring than his neighbors. In order to accomplish this he knocks both ends out of a sugar barrel, sets it on end in a hole that he has dug on the north side of his corn crib, so that the top of the barrel is flush with the surface of the ground, and packs soil firmly around it. The bottom of the barrel is lined with leaves, and ventilation is furnished by a 2-inch rain-spout that extends from near the bottom to 3 feet above the top. The upper end is fitted with an elbow to keep out storms, and the part that extends into the barrel is perforated with a few nail-holes. Only perfect fruit is used, and the barrel is heaped. As cold weather approaches, the apples are covered with paper similar to that used in covering celery, and several inches of leaves. The final covering of sods or soil is added before severe freezing weather. The average farm cellar will not keep apples in good condition later than March, but this plan lengthens the season several weeks.

The idea of burying fruit is an old one, but the barrel lining keeps the fruit cleaner and more easily accessible. Then, too, the same pit can be used several seasons until the barrel collapses, although it is better to use a new barrel every two or three years.

Pennsylvania.

Careful Handling of Fruit Always Pays

Bruises are minimized and the proportion of first class specimens increased if proper harvesting equipment and methods are used in the orchard.

Apple Varieties for Pennsylvania

One of the most serious questions the fruit grower has to face is that of varieties. The Pennsylvania State College advises against the use of more than three or four varieties in commercial plantings. One great difficulty as observed by the authorities of the institution is that many growers have so many varieties that they are unable to sell any large amount of any one of them.

The best commercial varieties for southern Pennsylvania are: Yellow Transparent, Early Harvest, Red June, Duchess of Oldenburg, Gravenstein, Wealthy and Maiden Blush, named in the order of season, for early apples; and Smokehouse, Grimes, Jonathan, Stayman, Rome Beauty, Black Twig and Paragon, Stark, Gano and York Imperial in the order named, for fall and winter varieties.

For higher altitudes in central Pennsylvania and for western and northern Pennsylvania, the same early apples, and such fall and winter varieties as Wealthy (a fall variety farther north), Grimes, McIntosh, Rome Beauty, Black Twig and Paragon, Baldwin, Gano, Northern Spy, Stark, Rhode Island Greening, King, and if not too high and cold, Jonathan and Stayman.

Best results will be secured by planting in blocks of two, four or six rows of each variety. Never plant an odd number of rows of any variety, as it interferes with many of the cultural practices, such as spraying, harvesting, etc.

New Jersey Apples of High Quality

New Jersey is shipping more apples just now than almost any other state. During the week ending September 17th, 47 carloads were sent out of the state, besides thousands of packages in less than car lots. Up to the present time more than 1000 carloads have left the state. The crop is short but the quality is excellent and growers are receiving satisfactory prices. Bushel hampers are bringing $2, and barrels of good stock are selling for $5 and $6 in the wholesale markets. Apples to reach these prices, of course, are the result of good culture. Many orchardists found it necessary this year to spray from four to six times.—Alexis L. Clark, Chief of the New Jersey Bureau of Markets.

Scheduled Meetings

New Jersey Horticultural Society, Newark, Dec. 10-12.

Pennsylvania State Grange, Williamsport, Dec. 11-14.

Maryland Agricultural Conferences, Baltimore, Dec. 18-20.

Maryland State Grange, Bell Air, Dec. 11-13.

Grange Interests

MRS. JENNIE M. RODGERS
Ceres Pénna. State Grange

Farmers have often been accused of being the least organized class of all the groups of men it takes to make up this world. When I think of the one national organization which has stood now for more than half a century and always fought for the cause of agriculture, I often wonder why its membership does not include every tiller of the soil. I have in mind, of course, The Patrons of Husbandry, better known as the Grange. I find that in seven Middle Atlantic States approximately 280,000 members in about 2600 subordinate organizations are now enrolled in the Grange. As you know, it is a secret organization and possibly one of the causes of its success is the fact that it is the only one which permits women to share equal privileges with men, and it has been built up to appeal to all members of the family old enough to realize the responsibilities which fall upon them with membership. Surely a great many readers of The Practical Farmer are interested in this work, so I hope from time to time to present things of interest to them.

To have a strong influence for good in the life of a community ought to be the ambition of every Grange. As a good example of this I recall Cordova Grange in Maryland. For three years past they have had an especially commendable booth at the Maryland Week exhibit held in Baltimore, where they not only made a good showing of the various farm products they raised, but distributed booklets setting forth the advantages of their town, Cordova, and the productive farms which surround it. Backing this publicity up by individual effort, the members have recently succeeded in getting an up-to-date creamery for the town.

As there will be no Maryland Week exhibit in Baltimore this year, owing to the use of the Fifth Regiment Armory for war purposes, the Grange is planning to hold a community exhibit in Cordova during November. I understand each county in Maryland has been allowed $100 by the State for such an exhibit this year, so they are planning to use this money, and possibly add to it, for premiums and expenses.

The posters and advertisements now appearing every place regarding the second liberty loan call to my mind the opportunity which exists for every Grange to do its bit. These bonds are an excellent investment and any Grange which has fifty dollars or more of surplus funds can well afford to purchase one of them. The Liberty Loan bonds can at any time be converted into cash, pay a good rate of interest and are absolutely reliable. Surely a lot of our organizations will loan their money to the Government, especially when it is to be used in providing for our sons who are offering all they have, their lives, and when it is one of the vital ways of bringing this terrible war to an early end. Our local Grange purchased two hundred dollars worth of the first loan.

Halloween, with its thoughts of old-fashioned ginger-bread, pumpkin pie, sweet cider, nuts and apples, seems an especially fit time for a farmers' celebration. For a number of years our Grange has had a Halloween social on the Saturday evening either just before or following this day of witches, and it is always one event looked forward to with pleasure. Nearly everybody comes masked and dressed in grotesque or fancy costume. We have a jolly time cutting capers and making fun generally until everybody gets there, then all form in lines of two and have a grand march. After several times around the hall so that all can see each other, the few who were not masked try to guess the names of the two on the lead and when they guess right the masks must be taken off. The two costumed ones then join the guessers and the same plan is carried out until all the masked ones have been rightly named. After this we play games of various kinds and have refreshments, which I have already named. To bring out a lot of members, so as to arouse interest for the winter meetings, we find our Halloween social a great success.

It would be a great pleasure for me to receive through The Practical Farmer a letter from any Grange member in the Middle Atlantic States, telling me of some new idea they have sucessfully carried out in their meetings, so that I can pass it on. I would also like to know some of the different lines of work the various Granges are doing, so that we can have something in this column from time to time which may be the means of giving courage to a weak Grange or spurring an active one on to still greater achievements. If you cannot find time to write me a letter, won't you send me your last literary program on a postal card, or a copy of your printed program if you have one?

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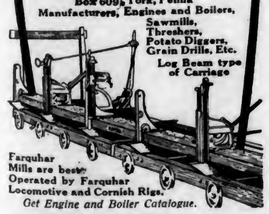

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Baits and Scents for the Trapper

CHARLES H. CHESLEY

Many amateurs hold the opinion that the secret of successful trapping lies in some magic scent. This is very far from the truth, and the individual or firm that advertises anything of the kind is not worthy of patronage. It is true that certain scents and combinations of odors are attractive to certain fur bearers and experienced trappers have taken advantage of this fact. Also, certain materials are sold by reliable supply houses, in the form of liquid attractors, that have a considerable degree of virtue. The amateur will do well to procure a bottle of one of these scents and use it sparingly. A few drops placed near the trap—not upon it—is quite sufficient. These attractors do not take the place of bait—they simply act as lures to call the creatures to the locality of the set. Bait is still necessary.

There are various ingredients used in trappers' scents. The base of most of those used for foxes is assafœtida. This may be mixed with alcohol or the contents of the scent bag of a skunk. Improbable as it may seem to the inexperienced, there is nothing that will attract sly Reynard better than the essence of skunk. A good bait for foxes and raccoons is made by cutting up the carcass of a skunk or cat and placing it in a glass jar, on which the top is not tightly fastened. Set this in the sun and allow it to partially rot. Such a bait, with a few drops of scent placed near, is a sure drawing card for foxes, and easy to prepare. The carcass of a rabbit, or any other meat, will answer the purpose if a skunk or cat is not available.

One of the best baits for mink, raccoon and skunk is fish oil. As was told in the previous article, this is made by chopping up a quantity of small fish of the minnow type, or a pickerel or trout, and placing it in a glass jar in the same way the fox bait is prepared. Two or three weeks will rot the fish and cause a clear oil to rise to the top. This should be strained out and used like other scents. One or two drops will be enough to use at a time, as it has a lasting odor.

The contents of the scent sacs of female foxes and minks are usually saved by experienced trappers and used as lures. These are particularly attractive during the latter part of the season, as spring approaches; indeed, this is almost the only scent that is effective at this season. Young trappers do not have such scent material available for use, but it is well to preserve anything of the kind that comes to hand in the course of skinning the victims, for it is sure to come in handy at some future time. The contents of the scent glands can be preserved in tightly corked bottles and kept over from year to year.

For certain animals, fresh bloody meat is desirable. This is true of skunks, civet cats and opossums. As a rule these creatures are not difficult to capture and they will take almost any kind of meat. A freshly killed rabbit or the carcass of a muskrat will answer the purpose. The entrails and waste parts of hogs, lambs or cattle, killed on the farm, may also be used in trapping. In the West, where coyotes and wolves are found, such materials make the best of bait. It is well when using anything of this sort, to drag it for some distance along the ground. Any animal finding the trail will follow it to the bait and if the traps are skillfully set, there is a pretty good chance of making a capture. Where weasels abound in the colder regions, the baits are often dragged along the ground in this way from trap to trap. This animal has a very keen scent and can readily follow a trail. A handful of feathers about the trap is an effective cover for the weasel sets.

Many traps are set for muskrats without bait, but it is often desirable to use something to attract them to the traps. A sweet apple is effective, as are also carrots, parsnips and turnips.

Many of the carcasses taken by the trapper are used in preparing baits. Muskrat meat is especially liked by minks and skunks. Fish is very attractive to minks, otters and raccoons. Canned salmon has a far-reaching odor and will lure the fur bearers from a distance. Tinned sardines will serve a like purpose. Smoked herring is another tid-bit that few of the meat eaters can resist.

In making scents for foxes, coyotes and other creatures, that are particularly cunning, the traps may be rubbed with bergamot or catnip leaves. This destroys the smell of iron and at the same time overcomes the human scent.

As the trapper becomes experienced he will find that there are many things that the various animals are particularly partial to. Close observation of the contents of the stomachs of the creatures will teach one to use the proper baits. Early in the trapping season, one needs to use baits that are attractive, but later, when food becomes scarcer in midwinter, the animals are less particular.

This article has suggested but a few of the baits used by trappers. Many others may be equally effective and will doubtless suggest themselves as the trapper's experience becomes more varied.

New Hampshire.

Profitable Ideas on Fall Field Work

(Concluded from page 346)

rather slowly it is a good plan to put it on the surface of the land in the late fall or early winter. Also, at this season of the year, it is easier to get a shipment of a carload of ground stone than in the spring when work is rushing. While it is true that the corn harvest now occupies much of the time, the land is in a better condition for the spreading of lime than it will be in the spring when the fields are soft. The ground stone may go on the newly seeded wheat or on the sod land which is to be turned for corn next year. Limestone does not deteriorate if not spread, hence if it is not convenient to apply the material upon arrival it may be placed anywhere under cover and is ready for instant use. In these times of scarcity of labor more attention must be paid to the distribution of the work. Limestone is rather bulky and heavy and for that reason should be handled when the work is not rushing.

Plowing in the fall for next spring's crops distributes labor more evenly throughout the year, favors earlier seeding, improves soils and kills many insects. Where soils are subject to washing or catch crops are seeded fall plowing is not recommended.

Farm labor is usually more available in the fall than spring. Crops can then be seeded earlier next spring. A difference of 24 bushels of corn per acre has resulted for eight years from a difference of a month in planting corn at the Ohio Agricultural Experiment Station. About nine per cent. less moisture was present in the earlier corn.

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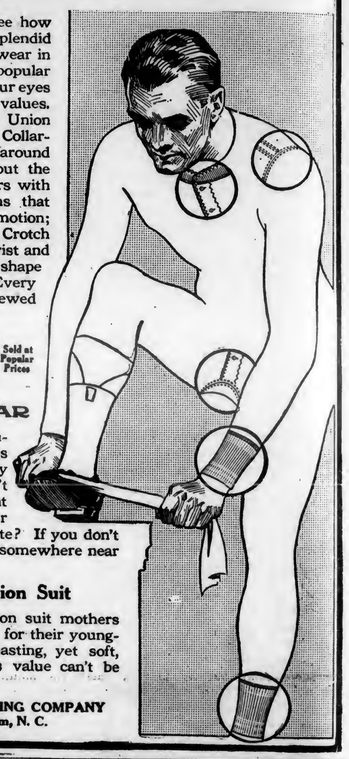

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Ideas from Commercial Poultrymen

J. T. BARTLETT

A commercial poultryman who is called "fussy," but whose hens outdistance all local competitors in egg production, spends a good many hours caring for his litter. Every night when the hens are at roost he takes a fork and throws together all the litter in each pen in one big pile in the center. Then he scatters the morning feed of scratch grain over the sanded floor. Then he spreads the pile of litter lightly and evenly, taking pains to see that every foot of surface is covered. His litter is oat straw.

More than one object is attained by this practice. In the first place, it forces the hens to work for their feed in the morning. When litter is left unstirred for days it gets in such shape that grain lands on top and stays there. The hens soon stop scratching in such litter. In the second place, the nightly handling prevents the litter from absorbing a lot of moisture. Dry footing is necessary if profits are to be secured, but a litter left alone is very apt, especially in winter, to absorb moisture and become heavy and damp. In this man's hen houses litter is always dry and light. It is inviting. It fairly coaxes the hens to work in it.

By the condition of a poultryman's litter it is generally easy to tell the financial state of his business. Not many look after litter as does the man mentioned above, but by various devices they keep the litter in good shape. By improvising a loft and placing straw there, an efficient moisture absorber is obtained. The straw loft above means dry litter below.

Hens have a habit of scratching litter into heaps beneath the roosts. This is overcome somewhat by placing small windows in the back of the house, low down. Hens always scratch away from the light. In some commercial plants the custom is to rake litter out from the roosts at regular intervals, sometimes twice a week, and at these times to stir the litter in the entire pen.

Litter should be changed when it is "worn out." It is important, too, to remove the earth or sand below the litter. The most progressive commercial poultrymen now use sand extensively, placing two or three inches in every pen in fall and spring. Concrete floors with sand coverings are becoming very popular.

VALUE OF RUNNING WATER.

Running water in poultry houses used to be considered a luxury. It was first adopted, it is quite true, by rich poultry hobbyists who did not install it for pecuniary gain. Now, however, it is found in hundreds of commercial poultry houses, and its importance as a profit maker is established. Even the owner of a backyard flock can afford to have it. The value of a running water system is in the labor it saves. No other innovation in poultry management, unless it was the dry mash, has automatically lifted so much labor off the poultrykeeper's shoulders.

In putting in a water system, half-inch pipe is found adequate. Sometimes the pipe line is underground, with upright pipes and faucets at every other pen, filling a water pan which serves two pens by lying through a partition. In the past, however, more frequent installations have been with the pipe line overhead in the center of the house, or along the concrete or stone foundation wall near the floor level. Sometimes each pen is given a faucet, sometimes every other pen.

In the northern tier of states, poultrymen in winter usually give hens water from which the chill has been removed. Therefore they were not so particular at first about having frost-proof water installations in their hen houses. Hundreds of poultry house water equipments are consequently idle in winter. The most efficient water systems now have shut-offs and drains so arranged that they can be used in winter as well as in the summer. The poulrtyman, as he fills the water pans from the system, pours into each a little hot water.

Next to water in every pen, the best arrangement is water in every house. The cost in the latter case is, of course, much lower, but considerable carrying is still necessary.

Water pipe, like many other materials, is high at present, but this should deter no one from installing a water system. Running water is a big labor saver, and when was labor ever worth so much?

New Hampshire.

Egg Yield is Doubled by Culling Poultry

Actual test by a poultryman at the Pennsylvania State College shows that egg yield is frequently doubled or tripled by a judicious selection of the farm poultry flock.

The period from August to November is the best time to judge of a hen's production. It is an established fact that the poor producing hen seldom lays any eggs during the season of high prices. Eggs are high in price at present and will continue to rise. Poor producers stop laying in June, July and August. Good layers continue producing during the winter months.

In one flock in Pennsylvania 50 good hens and 50 poor ones were selected from a flock of 200 Barred Rocks. The remaining 100 birds represented the average run of the flock. During the first nine days the 50 good hens laid 177 eggs, the 50 poor ones 69, and the unassorted hens 177. In other words, for every egg the poor birds laid, the good hens laid 2¾.

Now is the time to cull the flock. The good winter layer has bright eyes, legs set well apart, pale beak and shanks in late fall and early winter, a strong, broad back, a deep and full abdomen, a deep, rounded chest, and is vigorous and active.

House Cleaning for the Pullets

There is no one thing which will insure the health and production of the pullet flocks more than keeping the poultry house clean. At this season, before the birds are placed in their winter quarters, the poultry department of the New Jersey Agricultural Experiment Station recommends that the house be given a thorough cleaning. As soon as the house is empty of birds, remove all portable fixtures, such as nests, hoppers, fountains, etc. Take out all the litter in the house and compost or spread on the fields. Next sweep the house, being careful to clean the walls, curtains, rafters and floors. When the house is as clean as possible, spray the interior with a good disinfectant solution. When this is dried, paint or spray the nests, perches, droppings-boards and walls adjacent to the roosting quarters with one of the good coal tar disinfectants, which acts as a wood preservative and also destroys every vestige of red mites. This completed, wash the windows thoroughly, and place fresh litter on the floor and clean, dry shavings in the nests. After airing for a day or so the house is ready to receive the incoming flock of maturing pullets.

Maturing the Pullets

The care given the pullets just before maturity is very important, as it may mean the loss of dollars and cents to the poultryman if they are not handled properly. They should not be forced; all forcing feeds, such as those containing high percentages of proetin, should be fed sparingly or not at all. Pullets at this age should be fed more grain than mash. Also, it is desirable to have all pullets begin laying at about the same time. Some will undoubtedly be later than others in maturing, as a result of a difference in the time of hatching as well as individual variation. It is desirable, therefore, to hold the very early maturing pullets back somewhat so as to have a uniformly producing flock.

After they have been put into their winter quarters in late summer or early fall they can be speeded up a little if they show a tendency to mature slowly. This can be done by increasing the amount of protein in the ration. At this period in their development, they should receive more mash than grain. With the present high prices of feed, the poultry department of the New Jersey Agricultural Experiment Station recommends a dry mash composed of equal parts of wheat bran, corn meal and meat scrap. This should be kept before the birds at all times. Supplement this with a grain scratch ration consisting of two parts of corn to one of oats. Feed the grain in the litter morning and night to keep the birds exercising. Supply plenty of green food, grit shell and fresh water.

Poultry Show Dates

NEW YORK.

The Palace, Dec. 11-15. Secretary, L. D. Howell, Mineola, N. Y.

Madison Square Garden, Dec. 28-Jan. 2. Secretary, Chas. D. Cleveland, Eatontown, N. J.

Utica, Jan. 15-19. Secretary, L. J. Bushnell, Oriskany, N. Y.

White Plains, Jan. 9-12. Secretary, M. A. Claude.

Rochester, Jan. 8-12. Secretary, James H. Westcott.

PENNSYLVANIA.

Kutztown, Dec. 12-15. Secretary, Geo. C. Herman.

Sinking Springs, Dec. 19-22. Secretary, Adam H. Stitzel.

New Kensington, Dec. 10-15. Secretary, S. S. Bard.

Uniontown, Jan. 1-5.

Lebanon, Nov. 27-Dec. 1. Secretary, Sam Black.

Altoona, Nov. 26-30. Secretary, M. J. Cashen, 416 Spruce Ave.

Mohnton, Nov. 28-Dec. 1. Secretary, Geo. W. Hatt.

Stroudsburg, Nov. 13-16. Secretary, E. M. Paxton.

VIRGINIA.

Richmond, Dec. 4-8. Secretary, W. C. Lassiter, 120 Mutual Bldg.

WASHINGTON, D. C.

Washington, Jan. 15-21. Secretary, R. D. Lillie, 227 Maple Ave., Tacoma Park, D. C.

WEST VIRGINIA.

Charleston, Dec. 10-15. Secretary, Julian C. Byrd.

Huntington, Jan. 21-26. Secretary, Geo. Parent.

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Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and makes hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker, write E. J. Reefer, poultry expert, 4367 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his Free poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

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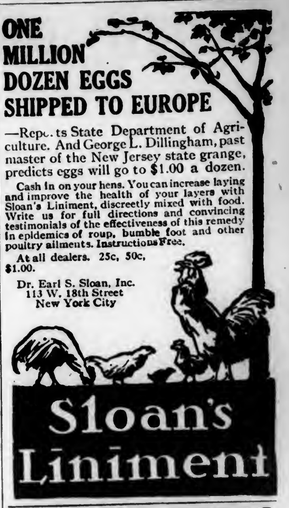

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108 sq. feet per roll—no mill ends—all one piece.

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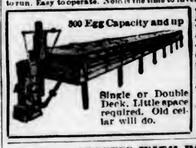

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THE P. I. O. CLUB

A New Department for Boys and Girls

Dear Boys and Girls: This is to be a little corner for YOU. We are going to call it the P. I. O. Club corner and each issue I am going to give you Middle Atlantic States Boys and Girls a straight from the shoulder talk—that is, if there are enough of you who want to have me talk to you.

I am one of those kind of fellows who has always believed in giving boys and girls what they want and not what I think they want.

Oh! you want to know what P. I. O. stands for?

That's a secret!

I know it's grand and glorious to have a secret and I am going to keep it just as long as I can—until you write and ask me what it means—then I will write a letter to you and tell you my secret.

I can see you standing there at the gate when the postman brings you a letter—I can see you running in the house and shouting: "Here's a letter from Uncle George. O goodie!"

THERE, I let the kitten out of the paper bag! I have told you my name. Now, what is your name? Let's get acquainted.

What is the big IDEA? I hear you asking this, that is, those of you who are not in the secret.

It is this and I am going to tell you right from my heart:

I wasn't born on the farm, but I spent many days on farms when I was a boy and I had an awful feeling of lonesomeness. Ever have it? Perhaps not. Well, I never forgot that feeling and I always wanted to do something for the farmer boys and girls of our country and now is my chance—if you will help me.

I would have given anything, when I was a boy, if I had had only one great big person to tell my troubles to—the same kind of a friend I'M going to be to YOU.

In the first place, I want to give you something to do that will give you a good idea of CITIZENSHIP and service. We cannot live all to ourselves. The spirit of GET TOGETHER is in the air and I want the boys and girls who read this to get together in one great big club where we can tell our joys and pleasures and where we will be so busy we will not have so much time to become lonesome.

I cannot do all this alone. Of course, I can tell you of games to play and all that, but I MUST have your help.

Will you give it to me?

Will YOU do your bit in helping to make the lives of other boys and girls on the farm happier?

I am not saying that they are all unhappy, but I do say that the boy on the farm has more time to get lonesome than the boy in the city with its many distractions and its movies and so on.

YOU are, my dear children, to be the MEN and WOMEN of tomorrow and don't you forget it. That is why I want to help you by the wide experience I have had in dealing with children and making them happy.

I have talked through papers to millions of children and I have stood up in the country school and talked to thousands of them and I want to tell you a secret—I would rather talk in the country school than in the city school because the children know what I am talking about—they know Mother Nature and her babies and that is what I love to talk about.

I want to reach out my right hand to you Boys and Girls of the Middle Atlantic States and give you the welcome that our P. I. O. CLUB extends to you and in return I want you to tell me truly what there is you want which you haven't got and also what you want to do that you are not now doing.

Answer these two questions, please.

Would you like to have me tell you a story every issue and what kind of a story would you like?

Would you like puzzles?

I want to please you and if you are a bit curious—if you find yourself going to bed tonight wondering what P. I. O. means, don't wait longer than the next morning and then fill out this blank. Remember, if you have wanted a friend, now you have one. I cordially invite ALL Boys and Girls living in the MIDDLE ATLANTIC STATES TO BECOME MEMBERS.

Sign and mail the pledge NOW.

Uncle George

PLEDGE.

Dear Uncle George:

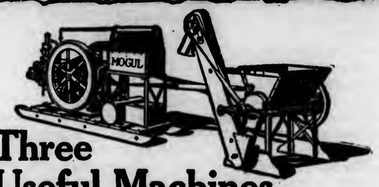
I promise to P. I. O. if it does not interfere with my conscience or my duty to my parents and friends. Please tell me the key to the secret of P. I. O., which I will not reveal except to brother and sister members of the P. I. O. Club.

(Name*).....

(Address) P. O.,.....R. F. D.....

Age.....State.....

* Write or print your name plainly and don't forget to dot your I's and cross your T's. Address all letters to UNCLE GEORGE, care Practical Farmer, Box 1321, Philadelphia, Pa.



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THREE International machines that will pay their way on any farm where there is corn to market or livestock to feed are:

An International Feed Grinder
A Keystone Corn Sheller
A Mogul Kerosene Engine

International Feed Grinders, for grinding small grain, corn on the cob, or corn in the husk, come in three styles with regular or special plates, 6", 8", and 10" in diameter. Capacities from 5 to 30 bushels per hour.

Keystone Shellers, adaptable to large or small ears, shell hard or soft corn clean without cracking the kernels or crushing the cobs. There are eight styles in 1, 2, 4, and 6-hole sizes, with capacities from a few ears shelled by hand, up to 4,000 bushels per day.

Mogul Kerosene Engines furnish steady, economical power for these and other farm machines. They operate on the cheapest fuels. Mogul kerosene mixers; built-in magnetos that make batteries unnecessary; enclosed crank cases; full equipment, ready to run; are features of all Mogul engines, from 1 to 50-H. P.

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We bought great quantities of paint and roofing at rock-bottom cost before prices went up. Now, when others must charge war prices, our customers get the benefit.

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WAR PRICES		OUR PRICES
$1.00—1-ply Rubber Remnants	only—	69c per sq.
$1.50—2-ply Rubber Remnants	only—	95c per sq.
$2.50—3-ply (Slate Surfaced) "	only—	$1.75 per sq.
$2.75—2-ply "Buffalo" 1st Grade (10-year guarantee)	only—	$1.65 per sq.
$4.00—3-ply "Queen City" 1st Grade (20-year Guarantee)	only—	$2.30 per sq.

PAINT SPECIALS

WAR PRICES		OUR PRICES
$2.00—Barn Paint	only—	$1.25 per gal.
$3.00—"Buffalo" House Paint	only—	$1.65 per gal.
$4.00—Queen City House Paint	only—	$2.35 per gal.

Prices may soon advance

You must act promptly, as stock is limited at these prices. Either make up an order from the above bargains and mail today, or send for our special bargain price list on roofing and paints. *Money back without question if you are not entirely satisfied.*

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Spraying Fruit

OUR EXPERIENCE POOL

We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1230, Nov. 1.—What plans have you made for extra work this winter? Will you crush stone, install a sawmill, grind limestone or cut fodder for yourself and neighbors? Tell us your experience with any of these jobs and what kind of power you have found most satisfactory.

TOPIC No. 1231, Nov. 15.—Tell us your experience applying lime to the soil. What form did you use and how much per acre? When, where and how did you spread it? How do you tell when it is needed? To what extent and where most has it paid you?

TOPIC No. 1232, DEC. 1.—What have this year's crops taught you regarding fertilization? Was top dressing the wheat with commercial fertilizer a success? Did a light dressing of manure help your hay? Did the potatoes miss the 10 per cent. of potash? What made your corn good on the mellow ground? Don't try to answer all these questions, but tell us in 250 words something along these lines which you have proved to your satisfaction this year.

S. M., Lima, Pa.—We never knew the joy of spraying and the real satisfaction of having fruit far superior to some of our neighbors until we purchased a power outfit. Now with the good wife to drive a team of mules pulling the engine and 250-gallon tank, two of us, each with a line of hose, can spray our 900 peach trees in two days, and that allows for the small delays which always occur when such a job is on hand. Spraying the peach trees three times a season, as we do, and finding help difficult to obtain, this saving in time soon pays for our outfit. It seems as if we now do as much in two days as we used to do in two weeks with our first barrel and hand pump outfit.

In the early spring before the buds start to swell we apply the regular lime-sulphur spray to kill the scale and help prevent the leaf curl. When the petals fall we spray to prevent wormy peaches by applying 1½ pounds of arsenate of lead powder and 1 gallon of the concentrated lime-sulphur to each 50 gallons of water. Not later than four weeks before ripening we spray with a weak lime-sulphur solution and feel that we are well paid for our trouble, as we have had some excellent peaches which have brought us good prices.

E. O. J., Woodlawn, Md.—Our peach orchard of 230 4-year-old trees was sprayed with Bordeaux mixture in early spring before blossoming, and a second time after the bloom was over. The trunks of the trees were scraped with a wire brush to remove insect eggs, and then washed with meat brine which had been saved for this purpose. A bristle brush was used in this latter operation. The root of each tree was dug about and inspected for worms. The ground was plowed both ways and disk harrowed. The fruit should have been thinned, but time flew too quickly.

When the heavy laden branches began to droop, ropes were tied about the trees to support them, but two split badly. Holes will be bored and bolts run through the injured trunks to repair the damage. The attention paid this small orchard brought its reward. The trees yielded a rich harvest of handsome fruit, which sold for from 60 cents to $1.50 per half-bushel basket.

The spraying outfit belongs to the farm. The engine is taken through the pear, apple and peach orchards on a wagon.

M. G. F., Dryden, N. Y.—In our neighborhood labor is very scarce, and the farmers are learning to buy machinery co-operatively, using such to replace former more laborious and slower methods.

A recent investment among five of us farmers was a horse power compressed air spraying machine. The cost for each of us was a little over $24. The machine sprays four rows of potatoes at once, or can be used very effectively in orchards by using a 15-foot extension rod adapted for use on high trees. General farming is practiced here, with a variety of crops. Each farm has one or more large family orchards which can be sprayed in one-half to two days, varying with the number of trees. One man can do the work alone if his team is steady, though two work to better advantage on high trees.

We find that spraying the trees from one to three times results in fine fruit, which enables the average home orchard to realize $300 and upwards yearly from the sale of apples, where before we were lucky if we got enough wormy, second-class apples for family use. Systematic spraying, with an occasional pruning, results in a regular yield from most of the trees, at small expense. A few buyers come to the farm and barrel the apples at a certain price per barrel. But we like to deliver the apples loose at the car at so much per bushel. Last year was a heavy crop, selling at about $3 per barrel for good, smooth winter apples—the canneries paying 45 cents per bushel for windfalls gathered in piles. This year the price is $2 a bushel and upwards, according to quality, and the canneries pay $1.50 for windfalls large enough for canning. The crop is very short except where spraying has been practiced for several seasons past.

Mrs. E. M. McC., Ashville, N. Y.—I can't say whether or not my spraying and thinning experiences are unique, but they are certainly highly unsatisfactory. We have, for some years, hired our spraying done, but last year it was very largely a failure over a great range of territory, and perhaps our sprayman was discouraged; anyhow this year he did not spray at all. No other outfit was available, and neither we or our neighbors have enough apples for home use. What few we have range in size from that of hickorynuts to hens' eggs, and each apple shows just as many defects as it has room for on its limited surface. The time has evidently arrived when, without thorough spraying, apples are absolutely unattainable. My neighbor grows the best apples in this section, and he sprayed five times this season. My chief regret is that he is too far away to spray for us, but I don't think he would have time any way.

The central New York fruit men, who grow apples on a much larger commercial scale than we, thin just as surely as they spray or pick, but we do not do so here nearly as much as we should, simply because it requires a good deal of labor and the necessary help is entirely unattainable; but we all realize the value of it. Of course, any one would rather handle one bushel of fruit worth $2, than 10 bushels of cider apples of no special value, though proper thinning should reduce only the number of apples, not necessarily the number of bushels.

J. E. F., Wellsboro, Pa.—We sprayed our orchard for codling moth only, this year. We used arsenate of lead powder, 3 pounds to 100 gallons of water and 2 gallons of home-boiled lime-sulphur solution. This spray mixture proves very satisfactory, as it kills all chewing insects that infest the apple orchard and the codling moth, too. Wormy apples are very scarce in our orchard. I believe the apples will run 95 per cent. worm-free. I also sprayed for several of the neighbors with the same results. I have never thinned fruit much, but think it would pay, not only for better fruit, but by insuring an apple crop every year. Our spraying outfit is a two-wheel machine made for two extensions for spraying fruit trees, and a 6-row potato attachment. It is fitted with two double acting pumps, a large air compression tank and pressure gauge. We use from 150 to 300 pounds pressure when spraying, which drives the spray in so we cannot help getting satisfactory results.

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A Full Year to Pay Yes—spread your payments over a year. That is the offer made and backed by a $12,000,000 concern. An offer we could not make unless we knew that the merit of the Majestic engine is so splendid that you will positively want to keep it. We take all the risk. Try it for 30 days before you decide. We stand behind any bolt on engine of the highest quality, we make an offer that is the most liberal you ever read! Use the engine on your own farm. Made in 2, 3, 5, 7, 9 and 15 H. P.

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The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address
WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

NOVEMBER 1.—What have you to say regarding the tendency of farmers to own automobiles? Is a pleasure car of any use on the farm except for pleasure riding? Are the up-keep charges high? Why don't you want to return to the buggy or "jump-seat" traveling days?

NOVEMBER 15.—What are the secrets of successful cake baking? Did you ever use a mechanical mixer? What kinds of pans do you use? What is the receipt for your favorite cake?

DECEMBER 1.—Each year new ideas are wanted for making Christmas gifts. Tell us in not more than 250 words how you will make some of this year's presents. What farm products do you find make acceptable gifts, and have you any special way of packing or preparing them?

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

Working for Winter Eggs

Miss I. E. B., Franklinville, N. Y.—What will help most in October to have a good supply of winter eggs is to fix all cracks and places so the wind and snow will not blow in; sort your flock well, so as to keep only hens that will pay for the feed you give them and a good profit besides and put in a supply of grit, oyster shell, charcoal and plenty of vegetables, such as mangels and cabbages for green stuff, for hens will not lay well without plenty of green feed. I find another great help in getting a good supply of winter eggs is to use a good lice remedy on my hens in October, and also in the hen house. As I have had best results from the following plan I shall follow it this winter, only perhaps using more wheat than I have other years, as it is cheaper than corn. My plan is to feed about equal portions of cracked corn, wheat, buckwheat and oats, feeding about 8 quarts per 100 hens, and the same amount of mixed mash composed of equal parts of corn meal, middlings, gluten meal, beef scrap and two parts wheat bran. I shall feed a little grain over night in the litter, also put the dry mash in a mash hopper over night, so the hens can get it at daybreak.

My green feed I shall give at 10 o'clock and my feed of grain at 3 o'clock in the afternoon, which will give the hens plenty of time to hunt the grain out of the litter before dark, giving them exercise. And last, but not least, I keep a few poultry remedies on hand (Oct. 15th is a good time to buy them for the winter) to give if any of my hens are sick, for a sickly hen will not lay eggs.

Miss J. M. G., Buchanan, Va.—Having thoroughly cleaned and disinfected the premises, culled out all undesirables, put plenty of forest leaves in shed to keep hens busy, I am ready to feed for eggs. Corn must be my chief dependence for grain, but I believe in corn for fall feeding, as hens will not lay unless fat. When there was plenty of milk for them they laid all winter with no other grain. Cracked corn is scattered in leaves in morning, whole corn, warmed through, at 4 P. M., allowing one quart to each dozen Reds twice a day. When convenient I give the feed at intervals to keep hens exercising. Pure water (warm in frosty weather), grit, oyster shell and meat scrap are kept before them, also a dry mash of one part alfalfa meal, two parts each corn meal and wheat bran, one spoonful of salt to a gallon of mash. Once a week or ten days we feed one tablespoonful each of sulphur and Epsom salts. One teaspoonful of soda in moist mash to 25 hens, as advised by our Poultry Editor. I clean the house every morning with a long-handled, broad-bladed hoe and stout stable broom kept in hen house; this is a matter of a few moments, and far easier than if done less often.

Vegetable trimmings, cooked dry as possible, table scraps and beaten bones furnish variety to feed and are greatly relished by hens. I think the secret of my success in getting winter eggs is plenty of feed, exercise and careful attention to details.

Mrs. D. L. T., Fine Creek Mills, Va.—Nothing on a farm pleases the thrifty housewife better than to have a well filled egg basket at this season of the year. But in order to have this one must care well for the hens all during the molting period. This can easily be done where one buys the commercial feed, for then a variety is offered from which to select, but on a farm one has to use just what can best be spared.

I use corn, sunflower seed, the screenings of wheat and peas, and wheat bran when I have it. This I use with corn meal to make a mash, using hot water and a pinch of salt, and occasionally a little soda. This is fed to them in the morning two or three times a week. I also feed the small grain in the morning and corn at night.

For a meat ration I give them all of the butter milk I can spare and at least twice a week put a tablespoonful of lard into their ration of small grain, and heat it thoroughly so that each grain may be coated with the melted lard. After the hogs are killed, instead of using lard I use cracklings or the skins that are cut from the fat of which the lard is made. These skins are cut up into short lengths, boiled and put away in a covered vessel and kept in a cool place where they keep well until March. Care must be taken not to overfeed with these meat scraps. After the cold weather begins, I give my hens warm water in the morning. Later in the day I fill the vessels with cold water. I also give cracked bones, using those left from the table, also oyster shells. For green feed the flock is on free range and has the run of the alfalfa lots.

It requires work done regularly to accomplish best results with poultry, but it pays to have fresh eggs the year around.

Mrs. J. W. D., Harrisonburg, Va.—The price of eggs will undoubtedly go higher and higher until Christmas; some predict eggs will be 75 cents a dozen until December, therefore it stands us in hand to think how we may have them, as we so much need them to take the place of meat since it is so high. I have noticed in papers, directions for putting eggs down in water-glass, but was always afraid to try until a reliable housekeeper said she has tried this method and finds eggs perfectly all right for frying and baking purposes. So I tried this method, following directions on can of water-glass. I am sure October 15th will be a still better time than September, as the weather will be cooler. This winter I expect to feed my hens as near as I can like I did last year, because my hens laid well during all the cold weather. In the first place, don't crowd them, and secondly, give a little Epsom salts every few weeks. I feed wheat in morning and corn at night. I don't think it pays to reduce the feed, but to change it often. I feed potato and apple parings, also sometimes I cook them and mix in a little bran; other times I feed them raw. A good plan is to have a scratch shed to keep fowls busy, for the industrious hen lays, not the lazy one.

Mrs. C. M. F., Deerfield, N. J.—We can read lots of helpful ideas, but the best teacher of all is experience. To be successful it means lots of hard work and being always on the job. You can not take care of chickens today and tomorrow let them take care of themselves. I do not think hens should be shut up too tight and warm, because if you are not very careful they will catch cold and may be roup. Never leave a sick fowl in your flock. On the south side of our scratch pen the top half is left open day and night, except when it storms from the south, then we drop a canvas curtain.

We feed either wheat or oats in the morning in deep litter, and corn at night. Do not let hens go to bed hungry—if you cut them short on feed they will cut you short on eggs. I keep dry bran and ground oyster shells before them all the time. Give clean hot water three times a day, or better still, make it half skim milk if you have it.

For greens, cow turnips or beets, waste cabbage and pumpkins are all good. Hang them on a string from the top of the building and you will be surprised how the hens enjoy reaching after them. It makes good exercise. I keep my chickens shut up until about 4 P. M. then let them out for a run until roosting time. Do not let them out when there is much snow.

Mrs. V. H., Duffy, W. Va.—I think we poultry raisers will try hard to get eggs this winter, as they are bringing a good price even now. We should try to get our hens through the molt before cold weather comes, and should get our pullets in condition to produce high priced eggs. I am now feeding my flock of Rhode Island Reds on corn, Kaffir, some sunflower seed and sour milk, and they are doing nicely. I will feed cracked corn and oats mostly this winter, as this is a poor wheat country and I cannot get wheat to feed poultry. I will also feed bran and Kaffir with milk, oyster shell, small potatoes and table scraps. My Rhode Island Reds are fine layers winter and summer, and I hope to have lots of eggs this winter as I usually do.

A Secret for Grown-ups

Dear Fathers and Mothers: Were you ever children?

Foolish question!

I want to ask if you will co-operate with me in making the lives of our children happier? This is the age of SERVICE and co-operation and I am starting a club for our Middle Atlantic States boys AND girls and I ask you to write and tell me if you have any suggestions.

I would not start this club without your consent. Your children belong to YOU and no one knows their wants better than you and that is why I am asking you to HELP me.

Your life will be richer and fuller if you dig down and help the other fellow and I am now asking you to help ME.

Do me a favor:

Before you go to bed, read what I have written on page 352 and tell me what you think of the idea. This club is to belong to the children of our subscribers and that means YOU.

If you like it, tell me.

If you don't like the idea, tell me as well.

What do you think can be done to make the lives of our farm boys and girls HAPPIER AND MORE USEFUL?

The greatest men this country has ever known were farmer boys—Lincoln for one. We are going to need great men and women and I want you to help do your part in making them. Your reward will be great.

Perhaps this is the chance you have been looking for.

Sincerely your friend,
Uncle George.

Everything in the World to Can

ELIZABETH O. JEAN.

My "career" of fruit and vegetable conservation has been so successful this season that I read the article "Whence the Fruit to Can?" with interest and dismay. In nearly all of Maryland we have had abundant vegetables and fruits. How much all of us readers of The Practical Farmer would love to fill an airship with fruits and vegetables and send to Mrs. E. M. A. We may have a "lean" season some time. Even wild raspberries and blackberries ripened in provoking quantities. I would think, "I am not going to pick another berry," but luscious and tempting they were, so I salled forth again and again until a long shelf is filled with these two fruits.

Now I have jams and canned berries for the Red Cross, enough for my spoiled family and several dozen glasses of jelly all ordered by customers at 20 cents per half-pint glass. A dozen quart jars of asparagus are alluring—peas, string beans, lambs-quarters, corn, a hundred jars of tomatoes—everything "known to man" I was going to say—but the "preserve" cupboard shelves are groaning and nearly everything was raised on our farm.

This past winter found me wondering how to make extra money. Poultry food was so high my profit was pitifully small. "Jelly, canned fruit and preserves for sale," thought I. To city friends their mere mention brought orders. I began with the first strawberries and cherries. Today my quince preserves were made and after a woodland pilgrimage next week for chicken apes my season's work is done. Preserves are sold at 30c. a pint, 50c. a quart, jars to be returned.

Maryland.

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No Money In Advance

Send no money but get this splendid rocker for 30 days' free trial. If, for any reason whatever, you don't wish to keep it, send it back at the end of the 30 days and we will pay freight both ways. If you find it all you expect, make first payment in 30 days. Balance in payments 60 days apart.

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Frame made entirely of kiln dried hard wood. The arms and front posts are of genuine quarter-sawed oak, other exposed parts being seasoned solid oak and all handsome golden finish. Seat has four springs supported on tempered steel bands and there are six-inch pillow springs in the back also supported on steel bands. The filling is wood fibre and cotton felt. Handsomely upholstered in imitation Spanish brown leather. Height of seat from floor 17 in. Height of back from seat 25¾ in. Seat is 19x19in. Width of chair over all 30¾ in. Shipping weight about 40 lbs. Shipped direct from Chicago warehouse or factory in Western New York State.

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Who Will Answer These?

Mrs. D. C., New Jersey, asks us: "Will some one kindly tell how to get rid of moths in carpet? I have used moth balls, turpentine and tobacco with failing results."

"What makes the best stuffing when roasting the holiday turkey?" asks Mrs. E. C. T., of Pennsylvania.

"How shall I prepare a goose for the Thanksgiving dinner?" asks Mrs. S. P. H., New Jersey.

"Will somebody please give me a receipt for making mince meat?" asks Mrs. H. A. B., Maryland.

No More Pie!

Omitting pie crust is one of the ways the Food Administration at Washington, suggests for getting at that 25 per cent. reduction in the consumption of wheat flour. Every woman running a farm kitchen has more work than she can do at this season of the year. Serve the fruit, fresh or stewed, and save the time spent on pastry, also the flour and shortening necessary to make it. If the American pie is sacrificed to the American spirit, American health will be improved.

It is a very simple matter to omit pastry in preparing for custard pies and convert the filling into a pudding. Custard, potato, or pumpkin filling will make just as good a dessert if prepared in the usual way, baked in a baking dish without crust, and served with just a suggestion of tart preserves or jelly.

Sometimes when you feel that you must have pie, try this plan. Cook your fruit for filling and season as usual. Place in pie plate without bottom crust. Cover the top with thin slices of bread, sprinkle with brown sugar and set in a hot stove to toast and candy over. Serve hot. This is really a delightful dessert and liked by grown-ups as well as children.

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8402.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. Long sleeves are gathered to bands.

8456.—Girls' dress. Cut in sizes 6 to 14 years. The dress consists of a plain waist and a one-piece skirt.

8470.—Misses' dress. Cut in sizes 16, 18 and 20 years. Front of waist and skirt are in one.

8460.—Girls' dress. Cut in sizes 6 to 14 years. Sleeves may be long or short and the skirt is cut in two pieces.

8457.—Ladies' waist. Cut in sizes 36 to 44 inches bust measure. The fronts are rolled to form revers.

8444.—Ladies' house dress. Cut in sizes 36 to 42 inches bust measure. Long or short sleeves may be used.

8468.—Ladies' skirt. Cut in one size. The apron is cut in one piece.

8449.—Girls' empire dress. Cut in sizes 6 to 14 years. The dress has a one-piece, straight gathered skirt.

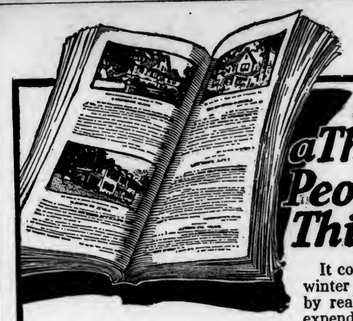
8463.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in two gores.

8455.—Ladies' dress. Cut in sizes 36 to 42 inches bust measure. The dress closes at the front and the skirt is in two gores.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA



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Other People's Business

The Romantic Career of the Practical Miss Dale

By HARRIET LUMMIS SMITH

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CHAPTER XXIV.

FAIR PLAY.

The late October sunshine poured its prodigal gold into the little room of which Annabel Sinclair was the sole occupant, and as its single door and window were both closed, the resulting temperature was suggestive of mid-July. The room itself was plain and bare. The cottage Thad West had purchased the year following his marriage was needlessly spacious for the immediate requirements of the two young people and for that reason several of the rooms had been left unfurnished, or nearly so, until time should justify Thad's foresight. As a rule Annabel had a feline instinct for comfort, selecting the easiest chair and the pleasantest outlook almost unconsciously. Today her discomfort and the convent-like austerity of her surroundings failed to impress her. She was hardly aware of them.

She was not in her daughter's home of her own volition that October morning. She had yielded as the most self-willed must on occasion to the assumption of her little world that this was the place where she would wish to be. But the first glimpse of Diantha had convinced her that her shrinking recoil had been well-grounded. Diantha, deadly pale, and yet with little flickering, unsteady smiles, Diantha, quiet and self-possessed, with nothing but those white cheeks to show how flesh and spirit shrank from the approaching ordeal, was terrifyingly a stranger. But that she was a woman there could be no doubt. And this woman, soon to be a mother, was her child.

The little, bare, remote room seemed a refuge. Annabel closed the door and would have locked it, but the key was missing. She sank into the single chair, her face storm-swept, transformed by her emotion almost beyond recognition. The natural assumption would have been that she was enduring vicariously the suffering of her daughter, bearing for the second time the pangs that had given Diantha life. As a matter of fact, Diantha's pain and peril were remote from her mood. Her mind had room for one thought: "Hast thou found me, O mine enemy!"

As she stared before her, hand gripping hand, her bloodless lips moving inarticulately, she saw the monstrous folly of her self-deception. She had played at youth, listened to the love-making of undeveloped boys whose mother she might have been, and made herself believe that she could cheat Time. And Time, too, had had his fun. For the moment it almost seemed to her that her girlish prettiness had been his merciless concession to add to the spirit of the game, as a cat lets a mouse run with a sense of recovered freedom, only to pounce again.

And now she was to be a grandmother. She made a futile effort to face the thought, to adjust her idea of herself to so astounding a development. But it was like the effort to imagine herself belonging to another race, Ethiopian or Oriental. It was unthinkable. She had a clearly defined conception of grandmothers, persons with a generous waistline and white hair. Undoubtedly they were useful people in their way, and worthy of regard. But she found it impossible to realize that she herself might belong to their number.

As if recalling some experience far distant, she fell to reviewing the events of the previous evening. Her caller had been a young fellow with a carefully nurtured and on the whole a promising mustache and with a lurid taste in socks. She had enjoyed the call. The boy's crude efforts at veiled sentiment, his languishing glances had been incense to her vanity. But tomorrow! "How is your little grandchild, Mrs. Sinclair?" he would say. Or no! He would not say it. He would not come again. He must realize, as she was doing, the absurdity of their acquaintance. He would laugh at the old woman who had painted her cheeks that she might look a girl and had let him kiss her hand as though granting a priceless favor. Annabel moaned faintly as she writhed. Every one would laugh. Every one must have been laughing for years over her silly pretenses.

She did not know how long a time had elapsed before heavy footsteps creaked down the hall. She shuddered and her body stiffened. The knock was twice repeated before she could utter an audible, "Come in."

Mrs. West pushed the door ajar and started violently as her eyes fell on Annabel. As not infrequently happens with women who preserve an unnaturally youthful appearance, under the stress of deep emotion, Annabel had aged years in an hour. It was a moment before Mrs. West could recover herself.

"I've made us a cup of tea, Mis' Sinclair, and set out a light lunch. We'll both feel better for a bite."

Annabel shook her head. "I don't want—anything." It took an effort to stifle a frenzied appeal to be left to herself.

This was far from Mrs. West's thoughts. She creaked into the little room, her ample proportions making it seem more cramped and small than ever, and patted Annabel's shoulder.

"Oh, come now, Mis' Sinclair, I know just how you feel."—Never was boast vainer.—"But Diantha's going to come through this all right. She's young and she's strong. The doctor says she's got everything in her favor."

Annabel's answer was a vague uncomprehending stare. Then she began to understand. Mrs. West supposed her consumed with anxiety for her daughter's safety, whereas the possibility that Diantha might die had hardly occurred to her. She found herself wondering if she were unlike all other women, an abnormality in her selfishness. In the larger matters Annabel had remained contemptuously indifferent to the opinion of her sex, though she would have found their criticism of her personal appearance disquieting. But now she was conscious of an unaccustomed sense of relief that Mrs. West could not read her thoughts.

"I don't want—anything," she repeated mechanically, and Thad's mother departed with obvious reluctance. In five minutes she was back with a cup of tea which Annabel swallowed in hopes of thus purchasing immunity from farther kindly attentions. And Mrs. West, bearing away the empty teacup, carried, too, a better opinion of Annabel Sinclair than she would have believed possible.

"I never thought she cared anything much for Diantha," she told Persis who had dropped in several times during the day to see how matters were progressing. "But I must say, I did her an injustice. She's been pretty nearly crazy all day. She looks like a ghost."

"Well, she's Diantha's mother when all's said and done," Persis responded. Happiness makes for tolerance. With all her charity for the wrong-doer, Persis had made an exception of Annabel Sinclair. But now the years of fatness, following instead of preceding the lean years, the overflowing fullness of her heart and life had taught her new indulgence. She was capable of believing that there was good in the woman.

The afternoon dragged cruelly. Now and then some faint sound reached Annabel, vaguely suggestive of the battle which must be waged for every new existence, and each time the sagging body of the woman stiffened, and her breath grew hurried. Once Thad passed her window, his young face set and white, and his eyes reddened as if from weeping. Annabel shrank away fearful that his glance might fall on her, but the fixed eyes of the young husband saw only his wife's girlish face as he had seen it last, colorless, quivering, undaunted.

It was not far from four o'clock when the sound of hurrying feet quickened Annabel's lagging pulses. A door shut quickly and then another. Some one was hurrying down the hall; some one who brought news. Annabel found herself on her feet. And then, instinctively she caught at the back of her chair to support herself, for the floor was undulating and the sunny room had grown dark.

Out of the shapeless blur in which her surroundings blended, a face took shape, the face of Mrs. West, wet with tears and radiant with smiles. It was she who had sped so lightly down the long hall as if joy had given wings to her feet.

"It's a boy!" She laughed out the three exultant words and hurried back to some interrupted task. Annabel continued to stand. When at length she released her grip of the chair, her fingers were numb and stiff. The thought crossed her mind that now she was at liberty to go home, since her grandson had come into the world, but the effort seemed beyond her strength. She sank into the chair again, half closing her eyes. The poignant pain of the past hours had changed to an overwhelming listlessness. She was too tired to think any longer, too tired even to suffer.

A brisk knock at the door roused her from her apathy sufficiently for a resentful wish that they would leave her to herself. Then the door opened and Persis entered. Her face wore the look that had impressed Annabel on the face of Mrs. West, that look of supreme satisfaction, blended with a curious, vicarious pride, and with it all, something that told of tears held back. Annabel's eyes went from that radiant look to the shawl-draped bundle in Persis arms. She put out her hand as if to ward off a danger.

Persis halted, gazing in consternation at the wreck of Annabel. In that shallow face the record of mental anguish was so unmistakable that the other woman felt a pang of self-reproach.

"Here I've been leaving this poor little bundle of nerves to fight this thing through all alone. I'd ought to have known she'd be scaring herself into a conniption." As a reaction from the severity with which she had dealt with her own thoughtlessness, Persis' voice, in addressing Annabel was as tender and caressing as if she strove to soothe a troubled child.

"Well, Mis' Sinclair, your worry's over. Diantha came through this fine, and before we know it, she'll be up and about and as lively as a cricket. But it's been a hard day for you same as for the rest of us. The Lord asks a good deal of women, to help Him keep this old world a-going, but He's got His own way of making it up to 'em."

As if to give point to her words, Persis' eyes dropped to the bundle in her arms. She came a step nearer.

"I s'pose, of course, you're glad it's a boy. I don't know why it is, but you just can't help feeling tickled when the first baby's a boy. Nine pounds, too. That's a grandson to be proud of."

"Don't! Don't! I don't want to see it."

Annabel's cry was involuntary, wrung from her by the realization of Persis' purpose. And Persis who had lifted the shawl that concealed the little face, let it fall again and stood staring.

"You don't want—to see the baby?"

The revulsion indicated by Annabel's attitude was a sufficient answer. Persis crossed to the cot-bed and sat down. If there was a person on earth she cordially detested, it was Annabel Sinclair, yet the conviction that his poor counterfeit of a woman was in need of strength and sympathy was sufficient to thrust that old dislike into the background.

"I guess today's been pretty trying to your nerves, Mis 'Sinclair. But you'll feel better if you take a look at this nice boy. I've seen a good many of 'em first and last, and I told Diantha I'd never set eyes on a finer baby."

A curious distortion of Annabel's face broke off Persis' eulogy. "Are you feel-

(Concluded on page 359)

Start the Day Right

It's not much fun crawling out of the comfy covers at five or six o'clock on frosty mornings. But the alarm has a pleasanter sound when you know a Perfection Oil Heater is waiting—ready to make things warm at the scratch of a match. However, to get *perfect* results, always use

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Rayo Lanterns
Safest and best. Give a piercing, far-reaching light on the darkest night. Durable construction. Oil founts never leak. At your dealer's, 50c up.

Opportunities Today for Dairymen

(Concluded from page 345)

or soy bean hay; and feed the expensive concentrates according to market prices for protein and energy, always bearing in mind the relation of costs to value of product received in the form of milk, butter, etc., not forgetting their general effect on the health and condition of the cow receiving the feed.

PRODUCTION OF HIGH-GRADE MILK AND CREAM.

It is a familiar saying that "there is always room at the top." The man producing "average" quality of milk and cream has found it rather difficult "sledding" during the past two years; those producing higher grades of milk, cream, butter and cheese have found a good market at paying prices for their goods. Evidence collected by various commissions and by the dairy farmers themselves, has convinced those interested that milk has, in many cases, been produced at a loss. As a consequence many farmers have sold their cows and gone out of the dairy business rather than continue to sell milk below cost. The result has been lessened milk production and a very decided increase in the price paid to farmers who continued, for their milk. Instead of $1.50 to $2 per 100 pounds, which was considered quite a liberal price a few years ago, the talk now is of $3 per 100 pounds for milk testing 3 per cent. fat. Nothing is surer than that the farmer will go out of cows unless he receives more financial encouragement than has been given too infrequently in the past. Milk and its products have been sold altogether too cheaply, compared with the price paid for other foods, considering their relative food values. It will pay to encourage the dairy farmer by giving him good prices for his stuff, and it will pay the dairy farmer to produce high-grade food products, so that the world of milk, butter and cheese consumers may realize that they are receiving value for their money. A judicious campaign of advertising the value of milk among city consumers, has proved helpful and the idea might be extended to other dairy products.

CHEESE MAKING OPPORTUNITIES.

The world of consumers has suddenly wakened to the fact that cheese is a food—one of the cheapest in the past. One pound of cheese is worth at least one pound of meat—some say it is worth two pounds of meat—and has practically no waste and does not require cooking before being ready to eat. When people got cheese-hungry the demand increased faster than the supply, with the natural consequences that prices advanced until cheese now sells at wholesale at about double the price it has been for a number of years before the outbreak of the war. But even yet it is comparatively cheap food.

The special point we wish to make is that every dairy farmer can make cheese for his own and local trade, with small expense, and frequently out of whole milk, skim milk or butter milk that might otherwise be fed to animals on the farm. There is not space in this article to go into details, but at some other time I will speak of methods of cheese making suitable for farms, and which may mean not only a source of pleasure and profit for the farmer's own table, but also a means of profit in supplying local markets, and lessening food wastes.

CO-OPERATIVE BUYING AND SELLING.

Buying farm supplies, or any other supplies, for that matter, in small quantities is always an expensive way to buy, and especially is this true in the purchase of feed, which should, whenever possible, be bought in car lots, and as direct as possible from the manufacturer in the case of manufactured feed, such as bran, cotton seed meal, gluten meal, etc. There will always be a certain number of farmers who desire to take home a bag or two of feed every time they go to town; in fact, this serves, in many cases, as an excuse for going to town, but the wise dairyman will co-operate with neighbors where he cannot place a large order on his own account. In saying this we have no wish to depreciate the business of the feed dealer. If he is rendering necessary service in the distribution of feed his services should be paid for, but the tendency on the farm, as elsewhere, is to eliminate all unnecessary handling of feed and farm products on the way to or from the farm.

For a long time little or no attention was paid to this phase of the farming business. The existing conditions were accepted as necessary, and farmers, most patient of men, plodded on, doing the best they could with the conditions as they found them. But a new and improved era is dawning. The world is beginning to realize, as never before, that the destiny of nations is largely dependent on an adequate food supply. This supply of food must come largely from the farm. If the farmer is to produce more than he needs for himself and family it must pay him to do so, otherwise he is apt to become indifferent. Where the farmer is not receiving interest on capital invested, fair wages for himself and family, and all expenses covered, there is little blame if he sells out and goes to town as thousands of farmers have done in the past. We must not only have a campaign of back-to-the-land, but we must hold what we have on the farm. Co-operative marketing and buying is the next big problem to attack with reference to American agriculture. There always have been, and always will be, a few individuals on farms who are skilled bargainers, but the average farmer is not a good salesman or buyer, hence needs the stimulus that comes from co-operative bargaining.

The opportunities were never greater on dairy farms than they are today. Dairymen need to seize these and turn them to their own advantage.

Western Sheep at Home in the East

This shows a few of the thousands of ewes which the Philadelphia Wool and Textile Association has brought from the western ranges and placed on eastern farms. They are a combination of two very popular breeds, the Lincoln and Rambouillet and are tempororily quartered on a farm at Paoli, Pa. More of them can still be had at cost price by farmers who want to establish flocks to take advantage of present conditions.

Sheep Profits Depend on Ram

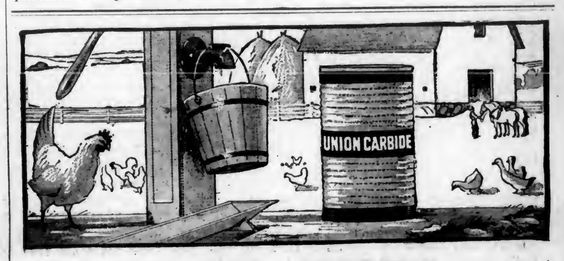
Since the ram usually represents more than fifty per cent. of the influence of heredity on each crop of lambs, improvement of the flock is best accomplished through this source.

Select a pure-bred sire of the breed which most nearly approaches the requirements of personal preference and local conditions. Experiments show, says B. O. Severson, of The Pennsylvania State College, that pure-bred rams possessing the desired mutton form and quality and well covered with wool, are more profitable than scrub rams. They produce lambs that are heavier, that mature earlier, that can be fed more economically and that demand a higher price on the market than lambs sired by a scrub ram.

The ram should be in good physical condition as a result of good feeding and a sufficient amount of exercise. In a small flock of 20 to 25 ewes, the ram is turned in with the flock the middle of September so that lambs may be dropped the latter part of February and during March.

To keep a record of the mating of each ewe and to make certain that all ewes are bred, apply lamp black to the breast of the ram each morning. If ewes come in heat the third time after mating, it is a fairly good sign that the ram is a non-breeder and a new sire should be used.

The heat periods with sheep vary from 17 to 20 days, and the gestation period from 148 to 152 days.



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The ease with which such a Carbide Plant can be operated, coupled with the extra value of the double service it renders, has brought about its adoption by over half a million owners of country homes.

It is significant that this popularity has been won in competition with other light plants of possibly hundreds of different types and kinds.

For twenty years every fair comparison has shown that the Carbide Light is the most powerful and brilliant light of them all. It is obvious too that the Carbide Cooking Range has supplied the one kitchen convenience which every country house wife has always longed for.

And there are many instances to prove that the Carbide Plant which serves both the lights and the cooking range is built to last a life time without repairs.

Such is the simplicity of the Carbide Light and Cooking Plant and the double service it renders.

As distributors of Union Carbide, we now supply our half million and over country home customers direct through our own warehouses, located in the centers of one hundred and twenty-one rural districts.

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11

What Are the Dairyman's Feed Bills?

A prominent manufacturer of mixed grain feeds writes us as follows in criticism of Mr. F. P. Willits' article, "Organization Puts New Life in Dairying" in the September 15th issue of this paper:

Editor Practical Farmer:

We have the greatest possible sympathy and interest in the desire of dairymen to get proper price for their milk, and we would not for a moment think of putting anything in the way of their getting the proper price, because we firmly believe that as a general thing, milk producers have not been properly paid for their milk.

However, we must take exception to the statement in the article on the first page of your September 15th issue, where this statement is made:

"So long as the milk checks overbalanced the feed bills the seriousness of the situation was not forcibly brought home, but when the feed bills became larger than the milk checks, something had to be done."

There seems to be an organized effort on the part of agricultural press and farmers' organizations, to lay all the blame for high priced milk on the feed bill, and very frequently an effort is made to blame the high priced feed bill on the feed merchant.

Now we think in justice not only to the feed merchant, but the feed trade in general, that such statements as above quoted should not be printed without proper investigation.

We deny that there ever was a time when the feed bill was larger than the milk check, unless the dairyman was giving feed to cows that should have gone to the butcher rather than be kept for dairying purposes. The truth of our statement can readily be figured.

It takes one pound of grain or feed, to three of four pounds of milk. Rarely does a dairyman feed heavier than 1 to 3, unless it is to very high testing cows that might get one pound of grain to 2½ pounds of rich milk.

Even with feed at $60 per ton, or 3 cents a pound (which we think is higher than has ever been charged) that would mean that the dairyman was not getting over $1 per 100 pounds for his milk. We have never heard of milk selling so cheap that the dairyman could not get even $1 per 100 for it. Therefore, the statement made in your publication is ridiculous to say nothing of being unfair to all who are in the business of selling feed. The milk producer's case is sufficiently just that it does not need any such exaggerated statements to bolster it up.

In your September 1st issue you printed an article headed, "Maryland State Dairymen's League," and quoted therein some figures of the U. S. Department of Agriculture concerning milk production. It was shown therein that for a hundred pounds of milk it required on an average 33.4 pounds of grain, together with roughage, silage, etc. This grain figured at $50 per ton came to 83½ cents, so that according to the U. S. Department of Agriculture the cost of the grain for a hundred pounds of milk was 83½ cents. The total cost for a hundred pounds of milk, including labor and overhead charges, such as interest and insurance, came to $3.33 per hundred pounds of milk, so that the cost of the grain was about one-quarter of the total.

It may interest you to have us set forth the figures in tabulated form, as furnished by the U. S. Department of Agriculture.

COST OF PRODUCING 100 LBS. OF MILK.

33.4 lbs. grain @ $50 per ton...	$0.835
44.6 lbs. dry roughage @ $17.50.	.7805
145.3 lbs. silage @ $10.....	.7265
Pasture	.087
3½ hours man labor @ 15c.....	.525
½ hour horse labor @ 20c.....	.10
Total,....	$3.054
Insurance, interest, etc.....	.276
Total,...	$3.33

The above figures based on a cow giving 5902 lbs. of milk yearly. The amount of production is comparatively low, and the figures of cost should be materially reduced for a higher producing cow.

In view of all the agitation concerning the high prices of feed as bearing on the cost of milk, it is interesting to note from the above table that even if the cost of the grain were cut in two, down to $25 per ton (which is lower than feeds have sold at for a long time) it would only succeed in reducing the cost of milk 42 cents per 100 lbs., or a little over ¾c. a quart. Therefore, it is apparent that the high price of feed can only be reasonably charged with ¾c. per quart of the increased charge for milk, and that is the full extent of the benefit that can inure to consumers if the price of feed were reduced by one-half.

We might incidentally point out that it is probably hopeless to expect any reduction in the price of feed to such a basis as $25 per ton, unless our big corn crop can be marketed at from 50 to 60 cents per bushel. The controlling influence in the price of feeding stuffs is the value of corn, and with new corn quoted in Chicago at around $1.20 per bushel, or over $42 per ton, it is hardly reasonable to expect that other feeding stuffs will decline materially.

Respectfully yours, etc.

While our critic is wrong in attributing to this paper the article concerning the Maryland Dairymen's Organization, which appeared in a contemporary farm paper, we are glad he has quoted it, as his quotation provides exact proof of the satement in Mr. Willits' article to which he takes exception. The gentleman in his zeal for his own business would have us believe that the grain feeds alone constitute the dairy farmer's "feed bills." Wouldn't dairying be "easy" if this were so? Unfortunately, however, every bit of Mrs. Cow's diet is "feed" and there are "bills" for every item in it—roughage, silage and pasture, as well as grain feeds—and the farmer who deludes himself into the belief that grain feed bills are the only legitimate feed charges—as unfortunately some have done—makes a fatal mistake. The cost of producing and handling roughage and silage, with the interest on the investment in the land employed in their production and for pasture must all be included in the "feed bills." Our correspondent cites the fact that corn is quoted at around $42 per ton in Chicago as a reason for the present high prices of the class of feed stuffs he manufactures, but overlooks the fact that the farmer manufacturing this same corn into silage must consider this as an item in his "feed bills." The U. S. Department of Agriculture, however, does not overlook it in the table of figures which the gentleman quotes as the cost of producing 100 pounds of milk, but fixes the cost of silage at $0.7265, the cost of roughage at $0.7805, and of pasture at $0.087, as against $0.835 for grain—making the total "feed bill" $2.429, or over five cents per quart. We notice in the table of costs quoted that the dry roughage was figured $17.50 per 1000 pounds, whereas that is apparently the price per ton; on the ton basis the roughage charge would be $0.3902 instead of $0.7805, and this would bring the total feed charge down to $2.0387 per 100 pounds of milk, or slightly more than 4 1-3 cents per quart. In either case we are sure that many of our readers could cite cases where milk only a few months ago did not bring the producers this amount and surely Mr. Willits' reference to a time when "the feed bills" become larger than the milk checks is justified by these figures.

We do not think the agricultural press has been unfair with grain-feed manufacturers and dealers, or blamed them for conditions beyond their control—nor have we observed any tendency in this direction among fair minded farmers or farmers' organizations. We believe the gentleman's complaint is founded on a misunderstanding—which, in fact, some of the milk producers themselves have shared. The recent milk agitations, however, have caused numberless producers to figure more than formerly and set them thinking along different lines. If it is not possible to sell farm raised products, grain, silage, roughage and pasture, to the cows for the same or better prices than to other forms of live stock or the general market will pay for them, dairymen will decide to stop feeding cows. Feed is, has been and will be the greatest item in the cost of producing milk and how to reduce this cost is one of the great problems which dairymen have.

EDITOR.

Feeding New Corn to Hogs

It is the prevailing opinion among swine men that green corn or new corn causes hog cholera. This is a false impression. As a rule, however, outbreaks of hog cholera usually increase throughout the country as the summer months progress and until the frosts of early fall, when there is sometimes a falling off. This is true in part because flies, birds, dust and other agencies which spread the disease are usually more effective during the summer. The ration may have an indirect effect upon an epidemic of hog cholera but the feed in itself cannot produce the disease. The disease is more likely to affect animals of low vitality, particularly when the digestive system is not operating normally. Any radical change in the ration is likely to result in severe digestive troubles even though the change be for the better. Green corn is often the cause of shoats and young pigs in particular "going off feed." In such troubles the mucous lining of the intestines and stomach is so altered that it is more readily attacked by the hog cholera virus, in case it happens to be present, and the disease is much more likely to result.

When feeding green corn for the first time in the fall, it is very important to begin lightly and increase gradually for a few days. When corn is to be hogged down, a ten-day preliminary of hand feeding is advised by the New Jersey Agricultural Experiment Station.

First Aid for the Stock

One of the common necessities for the veterinary medicine chest in the farm stable is a liquor cresolis compound or some other one of the coal tar disinfectants. Such a compound may be used for disinfecting stalls, as an antiseptic wash and as a dip to remove lice and mange. A two or three per cent. solution is the strength advised.

Every veterinary medicine chest should also contain a salve. A mixture for this purpose recommended by Dr. Irl D. Wilson, of the animal husbandry department at Pennsylvania State College, consists of nine parts pure vaseline and one part impure zinc carbonate. This makes a very cheap but very effective combination for sore necks and harness chafes with horses, and for cracked teats in the cow.

Tincture of iodine, also, is one of the best skin antiseptics and is unequalled in the treatment of closed wounds. Used for the latter purpose it should be injected into the deepest pockets of the wound with a syringe.

Raw linseed oil and Epsom or Glauber's salts are two other drugs essential to the stable medicine chest. Linseed oil in doses of a pint to a quart is used as a purgative for horses. Glauber's salts in doses of one to one and one-half pounds, dissolved in warm water are administered to cows for impaction of the rumen or paunch.

Cull potatoes make profitable pork.

Fresh air and sunlight combat disease in the stable. Dairy barns should be airy barns. Ventilation is conservation.

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8 —or that Curb, Splint, Ringbone or other blemish with Kendall's Spavin Treatment. Mr. Martens of Shawano, Wis., writes this about KENDALL'S Spavin Treatment

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Beautiful Registered Berkshire Pigs Both sexes, sired by my great boar, Fairfield Truesorth and from large sows. W. F. McFARRAN, Furnace, Pa.

Other People's Business

(Concluded from page 356)

ing sick Mis' Sinclair?" she asked in real alarm, thinking that she would never have given Annabel credit for this excess of maternal solicitude.

"Sick? Yes, I'm sick of everything. I'm glad that child's a boy. Those people that drown the girl babies like kittens, are in the right of it. No woman ought to live beyond thirty."

"Some of us," remarked Persis, recovering herself with difficulty, "would have missed a good deal at that rate." But her lips curled slightly. She was beginning to understand and to acquit herself of past injustice.

Annabel had reached a point where speech was a necessity. For years, she had returned Persis' dislike with the added venom of a small nature. But at this moment, when an outpouring of confidence seemed essential, she knew there was no one to whom she could speak so freely as to this woman she had hated.

"Life's cruel, cruel! It promises us women everything. And then it cheats us and tricks us and takes away all that it gave, one thing after another. It's like bleeding to death, losing your beauty little by little, fighting your hardest and knowing you've got to be beaten in the end. When I was a child in bed I used to think I heard footsteps coming along the hall, slow and stealthy, and I'd lie there trembling and quaking, afraid to open my eyes. That's the way I've been listening to old age creeping on me—for the last ten years."

"And if only you'd got your courage up to opening your eyes when you were a little, trembly thing, scared of those footsteps, like enough all you'd have seen beside your bed was your mother smiling down on you."

Annabel looked at the speaker without replying. Her look offered little encouragement for Persis to continue, but she needed no such incentive.

"You talk about life's being cruel. Why, you poor little soul, you don't know what life's like. You've never given it a chance. You haven't played fair."

For years Persis had acknowledged to herself, so give Annabel Sinclair "a good talking to." On various occasions she had uttered truths that had cut like knives. She had the same truths to utter now, but the spirit had altered.

"I guess every girl that was ever born liked to have men courting her and ready to fight one another for a kind word from her. That's nature. But it ain't nature to have it last, Mis' Sinclair. And that's where you made your mistake. You wanted to keep right on pretending it was May after it got along to August or so."

Something she saw in the poor harassed face caused her to change her position slightly, so that she could pat the listless hand of Diantha's mother while she spoke.

"Life ain't cruel, you poor soul! It comes along with both hands full. It says to the little girl, 'Come, drop that doll-baby, I've got something better than that. Here's a lover for you.' And then it says to the girl that's picking and choosing among her beaux, 'Drop that flirting, I've got something better for you. Here's a husband and a home!' And so it goes on. Instead of getting poorer all the time, we're getting richer."

She looked at Annabel tentatively. She was not altogether sure that her eloquence was having effect. But as Annabel sat in an attitude of expectancy, her face turned toward her monitor, though her eyes were downcast, Persis tried again.

"I don't say Thomas and I haven't missed a lot, I'm not belittling youth and its love and its hopes. But I do say that I wouldn't change this last year of my life for any that might have been. Why, when I wake up in the morning, my head's full of the children, thinking of 'em and planning for 'em and sometimes worrying about 'em. It needs a little tart taste, sometimes, to bring out the sweet. Thomas and I have spent hours, trying to decide whether we'll make a doctor out of Algie, or a civil engineer, and we know, both of us, that when the time comes, he'll take the bit in his teeth and do as he likes. Only it's fun planning it out. When I look back five years or ten, or twenty, for that matter, and see how my life has filled up and widened out, I feel real sorry for that little, young, silly Persis Dale who thought she was so happy and knew so little about it. If life takes with one hand, Mis' Sinclair, it gives with two, only you'll never find it out as long as you grip tight to what you've got."

She looked down on the bundle in her arms, and again her face was irradiated by a vivid tenderness, almost as if she had been mother of the child.

"Now, here's a case in point, Annabel Sinclair. Right here in my arms is a little lump of joy that ought to fill up your cup of happiness so full that it would spill over. Seems to me if this little white mite belonged to me, if I knew my blood was in his veins, this town wouldn't be big enough to hold me. I love my five, dear knows, but there's a hurt in thinking that I'm never going to see the Dale stubbornness cropping out or any of the Hardin ways. But you haven't got that little nagging hurt to take off your joy, like a pinch in a pair of new shoes. It's all along of you that this boy's here."

As if dominated by the stronger will, Annabel's eyes turned toward the bundle. And inwardly praying that this was the moment for her *coup d'etat*, Persis started to her feet.

"I b'lieve that's Thad calling. 'Fraid like as not that I'm going to kidnap his son and heir. You hold the baby, Mis' Sinclair, till I see what's wanted."

She had tucked the baby into the curve of his grandmother's arm before Annabel could protest, and she left the room without looking back. Annabel, breathing fast, stared down into the little red face against her shoulder. Such a queer little face, wrinkled with the ponderous wisdom of the world it had so lately quitted, placid through ignorance of the new life into which it had entered. She could not turn away her eyes. And this, being newer than the morning paper and yet as ancient as man, was flesh of her flesh.

The little, tightly clenched fists attracted her as irresistibly as the face. She surprised herself by poking one tentatively, and when the fingers opened and closed about hers, her lips parted as if to cry out. She had not dreamed that there could be such tenacity in those wee fingers. It was uncanny to be thus gripped by a creature so intensely new. And Persis had said that this was one of Heaven's good gifts, a joy that might brim life's cup over.

The door opened and she raised her eyes. Her husband stood there, gravely intent. She had never looked less beautiful than in her pale disorder, but the pathos of her drooping figure and bewildered face touched him strangely. Or perhaps it was the child in her arms.

"It's holding to my finger, Stanley! See!" Annabel's features twisted in a strange distorted smile. "Our little grandchild."

He moved nearer. For all his efforts, he found it impossible to make his voice altogether matter-of-fact.

"You've had a hard day, I'm sure. You'd better speak to Diantha and then let me take you home."

She rose to her feet unsteadily, holding the child with the peculiar awkwardness of the woman in whom the maternal instinct is lacking. But as she passed on before him, her husband saw that the tiny hand still curled tendril-like about her finger.

THE END.

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in the barnyard by following a few simple directions. You can do it during your spare hours with your farm labor. Most of the materials you need—sand and pebbles—are probably right on your farm, or at least near by. Portland cement can be had from the dealer in your town.
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In the picture are hidden a number of faces. How many can you find? Some are looking right at you, others show only the side of the face—you'll find them upside down and every way. Mark each face you find with a pencil, clip out picture, send to us with name and address NOW. We will give away a $360.00, 1917 Model, Ford Touring Car, as First Grand Prize, and Thousands of Dollars in Cash Rewards, Prizes and Special Premiums. Each worker gets a prize. Solve the puzzle. If you can find as many as FIVE FACES we will send you immediately
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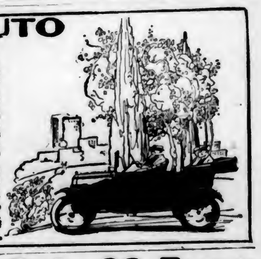

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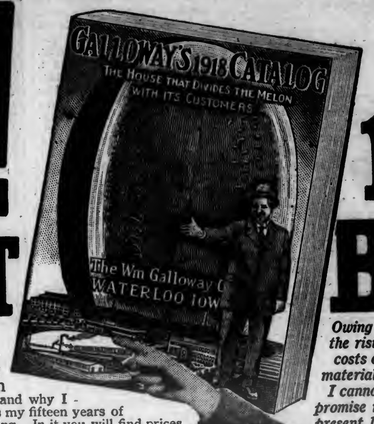

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Send today for Galloway's wonderful 1918 Book of amazing values. Learn what you can save on your farm supplies and how and why I can do it. My great 1918 Book climaxes my fifteen years of success in direct-to-you bargain giving. In it you will find prices lower than you ever thought possible—especially now when prices are soaring. There is no mystery about my low priced, high quality goods—no magic, nothing but good, sound reasoning. It's a plain business proposition. I am the manufacturer. I own and operate a chain of factories here in Waterloo where I turn out thousands of Gas Engines, Spreaders, Tractors and Separators every year. These I sell to you right off the factory floor with just one small manufacturer's profit based on an enormous output. I pioneered this direct-to-you method of selling and it has won me the friendship of hundreds of thousands of farmers everywhere because *I save them money.*

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Four good sizes at four low prices—375 lbs. 500 lbs. 750 lbs. 950 lbs. per hour

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I built this vast manufacturing business on the plan of no lost profit between manufacturer and user. I cut out all waste from the raw material to the finished product and from the time the product leaves the maker's hand until it gets to the actual consumer. I built the first really high quality Gas Engine and sold it direct from the factory at a most reasonable price—the same with Separators, Engines, Tractors, etc.

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Buy on 180 Milking Test Let this 90 day working test prove its worth on your own farm. Be certain it's the separator you want before you decide to keep it. Note how sturdy and strong—how easy it is to wash and clean—how clean it skims—and a hundred other separator points that mean so much to you in dairy profits. Write today for book.

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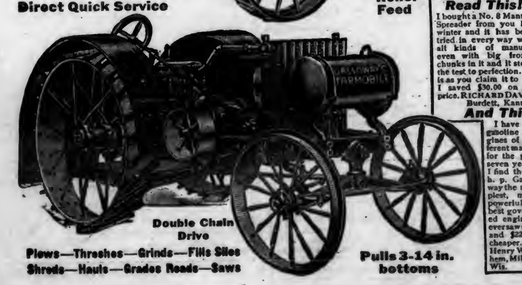
WM. GALLOWAY CO.

567 Galloway Station Waterloo, Iowa



Read This! I bought a No. 8 Manure Spreader from you last winter and it has been tried in every way with all kinds of manure, even with big frozen chunks in it and it stood the test to perfection. It is as you claim it to be. I saved $50.00 on the price. RICHARD DAVIS, Burdett, Kansas.

And This! I have run gasoline engines of different makes for the past seven years. I find the 16 h. p. Galloway the most simplest, most powerful and best governed engine I ever saw run, and $225.00 cheaper. Henry Wenhem, Milton, Wis.

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Plows—Threshes—Grinds—Fills Silos Shreds—Hauls—Grades Roads—Saws

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The Practical Farmer

PUBLISHED CONTINUOUSLY SINCE 1855

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By W. F. MASSEY

THE past season has shown a wonderful display of interest in the growing of vegetable crops. Thousands of people went enthusiastically into the cultivation of city back yards. Few of these had had any experience in the cultivation of the soil, and city back yards are commonly the poorest of garden soil, since they are usually made from the cellar excavation. I know something of the difficulty in these little city patches, for when living in West Philadelphia I had a sunny back yard and concluded to make it yield something. The soil was a greasy red clay sparkling with mica. I had a small three-light frame and sashes, and by stuffing this with pulverized sheep manure and fine bone meal I did get a fair crop of lettuce for Christmas, and in the spring grew radishes, lettuce and a number of other things by diligently filling the soil with manure and commercial fertilizer.

Some of the back yard gardeners the past summer had intelligent advice and direction and did make something, but the great majority had mainly experience, and I feel sure that the number of this class of gardeners who will repeat the experiment the coming season will be largely reduced. But I am convinced that the back yard gardens had very little influence on market conditions for the vegetable grower. Many did get crops that saved them from buying some things, but the amounts were trivial and the market hardly felt it.

However, there was another class of gardeners whose work and crops had a decided influence on the markets. I live on the outskirts of a city, only a single block from the city limits. All around me there are acres of vacant lots on which for ten years the grass has grown up and died down. These lands have been held by realty companies, and, of course, many lots have been sold as the building progressed, but there were still acres of land, and this year all these acres have been in cultivation by men who have had long experience in truck growing and were glad to get hold of some fresh sod. The influence of that old sod has been very manifest in the crops of early and late potatoes, sweet potatoes, cabbages, melons, etc. Here, this was simply an extension of area cultivated by men of experience, and wherever that was the case the crops certainly had an influence on the markets. Still, prices have been well maintained, as a rule, and tomatoes have sold at unheard-of prices all through the season. Of course, in many places the vacant lot gardeners were not men of experience, but only amateurs. Where they had good advice and direction, they grew notable crops, and taking the country over, I believe that the men who cultivated vacant lots this year will, on the average, be ready to take lots another season.

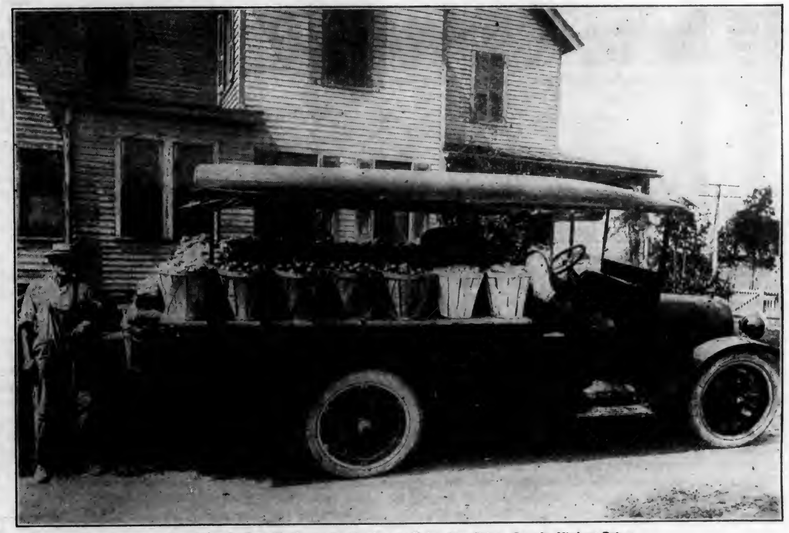
With our continued business prosperity and the vast sums being spent by the Government there is little danger of any serious overproduction. With the great crops of potatoes grown this year there is no prospect that next spring's early crop of potatoes from the South will bring near as high a price as they did last spring, when men in North Carolina and farther south got over $11 a barrel for their earliest shipment. That was an abnormal condition and can only be repeated under similar conditions. These conditions will certainly not prevail another season. And with the enormous crop of potatoes now being stored, there is little danger that losing prices will prevail, for Europe wants food and we will have to ship potatoes to our allies instead of importing as usual.

The canners have had to pay tremendous prices for tomatoes, and the price for the canned article must be high, not only because of the cost of the raw material, but because of the great demand for the canned fruit. This will have an influence on tomato prices to the growers next season. There will doubtless be heavier planting, and if the canners make profit on this year's stock they will be ready to repeat the prices of this season. In this locality the area planted in the late crop of potatoes is four or five times as large as ever before, and still the wholesale price has not yet fallen below $1.25 a bushel. Compared with the 40 and 50 cents of years ago, to say nothing of the even lower prices in some seasons the price of $1 a bushel will not be unprofitable to the grower, and it is very probable that potatoes will command more than a dollar.

I live in the midst of the greatest sweet potato growing section of the United States, Jersey not excepted. The millions of barrels that have been shipped annually for many years will probably be exceeded this season. The area planted has been largely increased, and while, owing to adverse weather conditions for this crop—too wet and cool—the crops per acre will hardly come up to the average of other years, the crop in bulk will be larger. As yet the prices have not been disappointing, and with a smaller percentage going into winter storage, the prices during winter and spring will doubtless advance.

Taking everything into consideration, I am convinced that the prospect for the market grower of vegetables is good. But it is the farm home garden which we would wish to encourage. Thousands of farmers have had better gardens this year than they ever had before. Thousands of housekeepers on the farms have been interested in canning and drying fruits and vegetables who never tried it before. In thousands of farm homes there is a store of canned and preserved products that will make the farm table present a greater variety and of more healthful foods than the old "hog and hominy." With plenty of canned vegetables and fruits there will be less salt pork eaten, and more enjoyment from the farm table and better health, too.

Now are we going to drop this interest in a better garden? We have proved, thousands of us, that the farm garden is the best paying spot on the farm and deserves the best treatment. We may not aim especially at growing for the market, but it is so easy



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This modern market wagon, used by J. D. Tice & Son, of Bridgeton, N. J., in disposing of the products from their truck farm this season, made a trip every other day to Atlantic City, sixty-five miles away, in order to take advantage of the good prices which prevailed on that market. A close study of the contents of this load shows watermelons, cantaloupes, cucumbers lima beans, tomatoes, beets and squash on the top layer with no knowing what is in the bottom.

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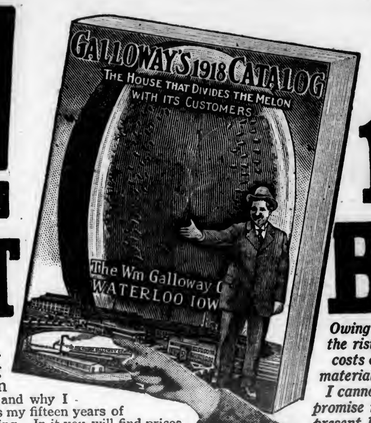
MY 1918 BOOK



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With our continued business prosperity and the vast sums being spent by the Government there is little danger of any serious overproduction. With the great crops of potatoes grown this year there is no prospect that next spring's early crop of potatoes from the South will bring near as high a price as they did last spring, when men in North Carolina and farther south got over $11 a barrel for their earliest shipment. That was an abnormal condition and can only be repeated under similar conditions. These conditions will certainly not prevail another season. And with the enormous crop of potatoes now being stored, there is little danger that losing prices will prevail, for Europe wants food and we will have to ship potatoes to our allies instead of importing as usual.

The canners have had to pay tremendous prices for tomatoes, and the price for the canned article must be high, not only because of the cost of the raw material, but because of the great demand for the canned fruit. This will have an influence on tomato prices to the growers next season. There will doubtless be heavier planting, and if the canners make profit on this year's stock they will be ready to repeat the prices of this season. In this locality the area planted in the late crop of potatoes is four or five times as large as ever before, and still the wholesale price has not yet fallen below $1.25 a bushel. Compared with the 40 and 50 cents of years ago, to say nothing of the even lower prices in some seasons the price of $1 a bushel will not be unprofitable to the grower, and it is very probable that potatoes will command more than a dollar.

I live in the midst of the greatest sweet potato growing section of the United States, Jersey not excepted. The millions of barrels that have been shipped annually for many years will probably be exceeded this season. The area planted has been largely increased, and while, owing to adverse weather conditions for this crop—too wet and cool—the crops per acre will hardly come up to the average of other years, the crop in bulk will be larger. As yet the prices have not been disappointing, and with a smaller percentage going into winter storage, the prices during winter and spring will doubtless advance.

Taking everything into consideration, I am convinced that the prospect for the market grower of vegetables is good. But it is the farm home garden which we would wish to encourage. Thousands of farmers have had better gardens this year than they ever had before. Thousands of housekeepers on the farms have been interested in canning and drying fruits and vegetables who never tried it before. In thousands of farm homes there is a store of canned and preserved products that will make the farm table present a greater variety and of more healthful foods than the old "hog and hominy." With plenty of canned vegetables and fruits there will be less salt pork eaten, and more enjoyment from the farm table and better health, too.

Now are we going to drop this interest in a better garden? We have proved, thousands of us, that the farm garden is the best paying spot on the farm and deserves the best treatment. We may not aim especially at growing for the market, but it is so easy

Reaching the Best Markets with Produce in Prime Condition—Result, Highest Prices

This modern market wagon, used by J. D. Tice & Son, of Bridgeton, N. J., in disposing of the products from their truck farm this season, made a trip every other day to Atlantic City, sixty-five miles away, in order to take advantage of the good prices which prevailed on that market. A close study of the contents of this load shows watermelons, cantaloupes, cucumbers lima beans, tomatoes, beets and squash on the top layer with no knowing what is in the bottom.

INTENTIONAL SECOND EXPOSURE

to grow a surplus, and the home town will usually take it better than to ship small amounts to the large cities. Then, too, we must have a surplus to enable the housewife to can plentifully for the winter. For we are never again going to be without the abundance of canned products we have this year for the coming winter.

From Philadelphia southward there is no reason why the garden should not be carrying crops every day in the year. The early green onions from fall planted sets will be out of the way for the early spring crops. The fall and winter crops of spinach, salsify, parsnips, leeks and frame lettuce, to say nothing of the Savoy cabbages buried in the garden, are all appreciated by the housewife, and the surplus finds a ready sale, so there is no reason to have vacant soil in the garden any day in the year. I have in my garden now three plats of spinach. The first plat was sown in August, the second one the middle of September, and the third one the last of September. This last plat is to winter for spring cutting. The fall plats are furnishing far more than my small family can use, and the grocers are greedy for it at eight cents a pound, and will take all I can spare until real winter sets in. The same is true of other winter and summer crops. Of course, this can be done better here and southward than north, for our soil is open in winter far more than it is frozen and there is never much difficulty in getting up the hardy vegetables when wanted.

On the farm there is far too little effort to have an all-the-year garden. The surplus canned in summer is all right and should not be neglected, but the getting of fresh vegetable products in winter is also desirable. Leeks make a very acceptable substitute for green onions until the onions come in the spring, and in sections where the ground is apt to stay frozen most of the winter these hardy varieties of vegetables like carrots, parsnips, salsify, leeks, etc., can all be taken up and trenched upright like celery.

Too many farmers merely plant garden in the spring and when the farm work presses the garden is neglected and finally winds up in the fall a riot of weeds where the cut worms breed and are ready for the spring garden, while in a garden that is kept at work and kept clean all the year there is little trouble from the cut worms in the spring.

What we wish to urge is that every farmer will determine that he is going to have a real garden next spring, is not only going to grow a surplus for sale and canning, but is going to keep the ground at work so as to have some fresh vegetables all the year round. Then, with a few sashes on frames what an amount of salad material in the shape of lettuce one can have, and in the colder sections spinach can be grown in the frames and cut all winter in good shape, and with the double glazed sashes and well banked frames, lettuce, beets and radishes can be grown all winter. The back yard gardeners will be fewer next season and there may be a reduction in the number of gardeners working the vacant city lots. But no one need hesitate about growing a big garden plat on the farm because of these.

Then, too, even if there are wheel hoes and drills to take the backache out of lots of the garden work it should not all be left to the women. The men sometimes think after the garden has been plowed and harrowed that their work with it is over. Let's try next year to help all season.

Every season there are times when only the best will sell readily, and every grower for market can make his own reputation. When a grower gets the reputation of always packing his products in the best manner and all the contents of a package of the same good quality, and then makes it plain that he grew and packed the articles it will not be long before his reputation will sell his products at any time, while the man who has made a reputation for cheating in the packing and the quality of his produce will be docked or left behind whenever there is no active demand. Strict honesty will always pay.

At the Auction

THEO. F. JAGER

"ARE you coming along?" asked my neighbor, as he drove up one late forenoon. "I am going over to Jake Hurlbut's auction. Let's see what we can find. I think the stuff is going to be cheap, as the brewing storm will keep a lot of folks away."

This is the sentiment of many, who, for want of something better to do, go around from auction to auction to pick up so-called bargains to litter up their own homesteads. And yet it should not be said one should not go to them, for often the very implement, tools or stock needed can be picked up at such auctions to the advantage of both seller and buyer. If we, however, go to such auctions for the simple purpose of picking up cheap things, because they are cheap and a nine-months credit goes with them, we are our own worst enemies. Not alone that a tool almost used up costs too much, its real value considered; we are also apt to get beyond our means or needs, and once in the spirit of the thing, get a lot of stuff together that is not worth taking home. Yes, and worse. I know a man who broke a leg and injured his back so that he will suffer from it probably all his life, because he bought old ladders at an auction, that looked all right, but which had been weather-worn and weakened. The next fall he came down with the first one he tried to climb. If we have to have implements and tools, the first use is always the best, and where one intends to stay with the land, the best new stuff is just good enough. Of course, there are exceptions, but they do not make the rule.

Not Convicts as the Cross Stripes First Suggest—But Enterprising Young Farmers
Under the direction of the Montgomery Co. (Pa.) Farm Agent, a strong interest has been developed in that county's schools regarding seed corn. Provision now is being made for next year's crop.

Jake Hurlbut's auction was not of the ordinary kind. It was not the case of an owner retiring, nor of a renter going to a better place, but a case where the sons were not of the same mind as the father. For this reason there was a certain sadness to it all. Old Jake had finally made up his mind to give in to the boys, strongly championed by his wife, and sell it all —farm stock, tools and even the furniture, as Mrs. Hurlbut did not care to move to the city with the old furniture that had been in use when she was a child.

"I think we can afford to have new stuff once in a lifetime," she had said, when Jake said that the furniture was good enough for years to come, "and what will folks think of us in the city when they see our old-fashioned bedsteads, chests of drawers and pictures? You well know, Jake, that our folks already had them when we married. Let us make a clean job of it and start right, that is my idea."

Jake, who had always, for the sake of peace, given in did not make an exception in this case, and, while he was a sad sight to behold when piece after piece went, he swallowed his feelings and suffered on. It is not easy for a feeling heart to tear itself away from every piece that brings back to you cherished memories of old folks and the past, of days of sunshine as well as sorrow. We do not miss it until it is gone, and the sting of losing is bitterest at the time of parting. Old Jake, as he stood around watching with a moist eye the scattering of all that he had gathered, was the best proof that you cannot transplant an old tree without upsetting its growth. Where one has done a thing, and be it only farming, all his life, it is mighty hard to erase all feelings and forget what a lifetime has shaped and molded in one's heart.

In contrasting the laughing faces of the big sons and their busy mother with old Jake's plight, I could not help but think of the beautiful custom as the farmers in Holstein have it. There, if the old man is ready and willing to retire and leave the farm to his son or some one else, he does not hold an auction and scatter his all and move to the city, but he moves in the house facing the farm home, that belongs to the farm and which is especially built for the old folks' comfort. From here the old people, while taking life easy, can still aid with advice and help the young people that are now working the land. They know all about the land, for have they not made a living on it for a lifetime? By law or special agreement a certain sum and certain deliveries of grain, fruits and vegetables must be made to the old folks every year, and as they may have their own hog and chickens, they may still continue, in a minor way, what they did all their lives.

These old folks are not torn from their accustomed land and transplanted to where they do not understand the people nor the people their own customs. They remain where they are known, where they are satisfied and where they are in sympathy with all, until the grim reaper calls them. They have no auctions and what they leave behind is again used by the young folks on the farm as long as possible.

But back to Jake and his folks. The farm had been sold to a farmer from the Northwest, who had been able to sell his own at a good price, and who had come here to New York in order to profit by the cheaper land. He was a descendant of the sturdy Norwegians, and with two grown sons to aid him, will, without a doubt, show us folks what good is buried in the old Hurlbut farm. That he aims to start right could be seen at the auction. He did not buy the tools and implements, which had been exposed to wind and weather when not in use, nor did he care for the furniture that he probably did not need.

But when it came to the straw, the hay and the stock, eight cows and four horses, he did his share of the buying. It was, as my neighbor remarked to me, that the new owner seemed to know what was good and fit, and worth while, and all the other things he allowed to go, even if he could have them for a mere song. One could see it in his eye, that he did not understand why the others could make any bid at all on some of the stuff that was put up, and carry it home, when he, right on the farm, would not have it for a gift.

When we had a chance to talk a few words with him when the auction was drawing to an end, we realized that the new owner knew what he wanted, and that he had the will and power to do what he thought best for the farm and himself. He is going to do a lot of draining, with his boys, and will keep more cattle, so that he can cover the land better with manure This w always a sore point withe Jake, who, unassisted, could not swing it as strong as he would like to do.

New York.

One reason why I failed when I returned to the farm was the fact that I did not have sufficient interest in the farm paper. I had been in a newspaper office for several years and had acquired the habit of reading as many as forty or fifty papers in an hour. I had been accustomed to reading the daily press, and although I was taking several farm papers, I read them in about the same manner that I did the exchanges each morning in my previous work. I failed to get down to brass tacks in reading—would read the headlines and throw the paper aside. I ran my nose in the noose several times that summer because of the practice. I have since acquired the habit of reading the farm paper, and read it from cover to cover. I may not be able to apply the suggestions of the writers exactly as they appear, but with the use of common sense and brains a single issue is often worth the price of a year's subscription and often many times more. With a little application the habit of reading will come and will pay heavy dividends.—Walter Jack, Ohio.

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.
EDWARD T. WALKER, Managing Editor
THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS
W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE
F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES
J. C. Billingslea, 119-125 W. Madison St., Chicago.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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NOVEMBER 1, 1917

Mr. Hoover to the Farmer

WE gladly give this portion of our Editorial page to our Food Administrator, Mr. Herbert Hoover, who has this to say to the American farmer:

"From two and a half years of contact with the German Army I have come out of this horror with the complete conviction that autocracy is a political faith and a system that directly endangers and jeopardizes the future of our race—that threatens our very independence. It has, however, been able to command a complete inspiration of devotion and self-sacrifice in its people to the interest of their nation. The German farmer, in the name of the fatherland, supports a nation two-thirds as large as ours and threatens to subject the world from an area as large as Texas.

"I am convinced that we will find this same devotion a direct reply to the German farmer—by the voluntary service of the American producer. This is democracy, and will be its answer to autocracy.

"There is a human side to all this. I have spent two and a half years in Europe in intimate contact with the backwash of war. During this time I have been faced with the responsibility of furnishing daily the food of 7,000,000 women and children among a population of 10,000,000, and the food of these is today solely assured by the American farmer. During this time, however, the gradual diversion and destruction of men and ships amongst our other allies from the support of another 100,000,000 women and children has thrown them wholly in a state of dependency upon the American farmer for their daily food. Their husbands, brothers, and fathers are defending our liberty as surely as our own boys in France.

"The production of more fats is today a critical necessity for the preservation of these people and the maintenance of their constancy in the war. Every pound of fat is as sure of service as every bullet, and every hog is of greater value to the winning of this war than a shell.

"My vision of war is not of an academic problem to be solved by discussion and guaranties of profits; to me it is a vision of brave, dying men and suffering women and children for service on whose behalf the greater exertion of the American farmer comes as a direct necessity and a direct plea. The American farmer who sees war as I see it needs no inducement and no inspiration but the thought that every spade full of earth turned and every animal reared is lessening human suffering and guaranteeing the liberty of the world."

Well said, Mr. Hoover. No one knows the horrors of war and the needs of our brothers in arms better than you, and your message is a manly and pertinent one which we are sure will not fall on deaf ears. We farmers are so accustomed to appeals to "raise more" (generally at our own expense and usually with more satisfactory results to the "appealer" than to the "raiser") that we may be pardoned for being a little unenthusiastic usually; but this is different; these are times when class distinctions and differences of opinion are swept aside—we are all Americans and ready to do our part. We appreciate that the call of the Nation and of humanity is being answered loyally and enthusiastically by our city brethren of high and low degree—in the shops and counting houses alike—and you will not find us wanting in this same spirit. There may be occasional "slackers" among us—as in every walk of life—but as a class you'll not find us waiting on "discussion and guaranties of profits"—we'll do our part now and discuss when we have more leisure.

Tell us how we can best help, Mr. Hoover—talk plainly to us—we want to know you better. And when this war is over we hope that the friendship now established and the knowledge of the benefits of federal food administration which our government and we have gained in this crisis may result in the solving of the marketing problems which in the past have so hampered our usefulness to the Nation and in a large measure prevented us from realizing the competence to which we as the springhead of the Nation's food and clothing are entitled.

The Auto and the Hay Crop

ONLY a few days ago the state highway commissioner of Pennsylvania announced that there is one motor vehicle for every twenty-seven people in this state, or seven motor vehicles for every two miles of public roads. What these statements mean to farming conditions are more than could be treated fully in all of this issue. Some phases of what the pleasure car means on the farm are well told by the contributions to The Women's Exchange on page 373.

As another one of many angles, there is the resultant loss to the hay crop in both demand and price. Where hay has been a money crop this has meant a rearrangement of the farm plans. In some cases it has come as a blessing in disguise to have gasoline the greatest sought "feed" in the cities. Instead of growing so much timothy the legumes will now be given more of their just consideration to the great advantage of the land and the stock which eats them. There will also not be the temptation to allow a field to remain in grass until it has grown up to mostly weeds. The tendency will be to better farming methods, which include the keeping of more livestock and a recession to the old Flemish proverb, "More stock, more manure; more manure more crops; more crops more stock."

12,000—and Room for More

CO-OPERATIVE purchasing and marketing organizations among farmers in the United States, according to the U .S. Department of Agriculture, now number about 12,000, while 5424 of them recently told of the work which they are doing. As might be expected, creameries and cheese factories lead the list with 1708 organizations, although the grain elevators and warehouses were a close second with 1637 located in twenty-three states. The Western States showed the largest number of co-operative enterprises; in fact, 18 per cent. of them were located in Minnesota, followed by Iowa, Wisconsin and North Dakota.

The largest farmers' co-operative organization in existence today, and the one always held up as a model is, of course, the California Fruit Growers' Exchange. Its report, just issued, for the year ending August 31st, is interesting at this time and worthy of more than passing notice. Eight thousand citrus fruit growers work together in this association and market 69 per cent. of all the oranges, lemons and grapefruit grown in California. During the year just closed they sold 15,492,990 boxes of these fruits at a cost of 4¾ cents a box, and did not lose a single penny through bad debts or other causes.

One of the secrets of the success of this great organization has been their belief in advertising. Last year nearly half a million dollars were used for advertising, with the idea of increasing the consumption of citrus fruits to take care of the increased crops. This large sum is secured by assessing each box of oranges 2¼ cents and each box of lemons 4 cents for advertising in newspapers and periodicals. Whether it has paid or not is answered by the statement in the report previously mentioned, that the consumption of citrus fruits has increased 80 per cent. during ten years, or four times as rapidly as the population. Whether the success of these farmers has any lesson for the thousands of smaller organizations all over the country depends on what faith man still has in his neighbor. The fact that sticking, working and thinking together has paid well in the past ought to be ample evidence that it will pay at the present time, especially when all other classes are doing it.

"Water, Water, Everywhere"

OFTEN big events are passed almost unnoticed because larger ones are demanding all public attention for the time being. The world war in this case has overshadowed the completion of a new water supply for New York City. This new system reaches from the city 120 miles into the Catskill mountains, and by a series of almost unbelievable engineering feats adds the capacity of 500,000,000 gallons of water to the present supply of 336,000,000 gallons. This new great acqueduct siphons under the Hudson river at Storm King at a depth of 1140 feet, travels at a depth of 250 to 750 feet under the entire length of the city, supplying fresh water wherever needed and then passes under the salty bay and delivers it to Staten Island inhabitants. Truly an engineering achievement as great as the Panama Canal.

In contrast we have the popular view of a farm water supply which our city friends see in the movies. How often the heroine is sent to the creek, spring or well with a shining bucket; we do not know, but safe to say our city friends always admire the "setting," especially when its possibilities are fully taken advantage of. These scenes are always of summertime, however, not of the days when the ice must be broken or the pump thawed out, such as we will face within a few weeks. We are glad, however, that such scenes do not typify all farm homes. Water is one thing still to be had when wanted, for the trouble of getting it, and there are so many ways to get it if we only look around and take advantage of natural conditions. Possibly it will run by gravity or by a syphon, same as in the Catskill aqueduct, to the house, where it is always needed. If not, then the water itself, or the wind, can be made to pump it. Failing this, there is still air pressure, electricity, gasoline or steam willing to be harnessed to supply this essential liquid. If you do not want mother and the girls to long for the city, where water comes in pipes, it might be a good idea to correct the water "setting;" that which is pretty in the "movies" scenes becomes monotonous year in and year out.

Why Don't You Write?

THE short days and long winter nights are fast coming to us, when of necessity more time must be spent about the family fireside. Soon the time for pop corn, apples and nuts, books, papers and letters will be here as diversions for passing the long winter evenings. While the boys and girls are penning their letters to Uncle George, as lots of them already have done, it would be a good time for you to write us a letter on some farm topic. If you cannot think what to write about, turn to Our Experience Pool and Women's Exchange and write on one or more of the six subjects suggested there. A great many of our readers have formed the habit of becoming regular contributors to these departments, and while they are sending us good letters we would like to hear from others oftener. No one need fear that they cannot write good enough for publication, because some of the most acceptable letters we receive are the poorest if spelling, penmanship and grammar were taken into consideration. What we desire above all is actual experience, not hearsay knowledge or "hot air." For instance, we were obliged to omit a number of letters sent to The Women's Exchange in this issue because the writers admitted in the last few lines that they were not writing from experience, by such sentences as, "Next year we hope to get an automobile." As you know, we pay for all these letters published, and also for articles used in other parts of the paper. If we do not find your contribution suitable for our use we always return it if you enclose a stamp. How soon will YOU write to us?

OF course the 2nd Liberty Loan was a success—it just *had* to be! No man or woman who subscribed will ever regret it; we are all better for having done our duty—and a U. S. Government Bond is a mighty nice piece of property!

Suggestions for Storing Fruit

Store only clean fruit. Greater loss comes each year from the storage of wormy, bruised fruit than from improper storage conditions. All worm holes and bruises form entries for various fungi or rots, and the first rots form centers for infection for the good fruit next to the spoiled specimens.

In picking fruit for storage, pick it "hard-ripe," or just as soon as full maturity is reached, yet before any softness develops, caution the agricultural extension authorities of the Pennsylvania State College. In apples the seeds should be black and plump, and the stem should separate easily from the twig with a slight upward twist. Handle the fruit carefully so as not to bruise it, and place it in the storeroom as quickly as possible. There is a definite relation between the length of time fruit will keep and the time that elapses between picking and storing. Place fruit in clean packages, preferably with open tops for ventilation. Storing such fruit as apples in bins is a common practice but is not as effective as storing in crates, except when the storage cellar is very dry and shrivelling would take place if the fruit were placed in crates.

Pit storage is practical and inexpensive. On a well drained site dig a pit from 12 to 15 inches deep and from 3 to 5 feet in diameter. Line it with 5 or 6 inches of clean straw from which the chaff has been well shaken. Fill with fruit, sloping the pile up to a peak a foot or so above the ground. Lay a clean old carpet or burlap over the pile, cover with 6 or 8 inches of straw, and then throw a foot of earth over it. After the first hard freeze add another foot of dirt. Often straw or boards or manure are laid next the pit so as to keep the adjacent ground unfrozen. In this way one is able to secure unfrozen ground for the second covering of the pit.

Occasionally a 4 or 6-inch tile is placed upright in the pit. Experiments with pit storage at the Pennsylvania State College showed that from November until April a temperature of from 37 to 40 degrees F. was maintained, and during four months of this time it varied only from 37 to 39 degrees. When the pit is opened it is best to remove all of the contents so as not to interfere with drainage and ventilation.

Do not try to store fall apples and pears. Use such apples as Baldwin, Spy, York, Stayman, Rhode Island Greening, Rome, Ben Davis, etc., and such pears as Kieffer, Lawrence, Winter Nelis, etc.

Apple Crops in Six States

The Bureau of Crop Estimates of the U. S. Department of Agriculture on October 8th sent out the following report regarding the apple crop in the states mentioned:

New York.—It is estimated that western New York has about 15 per cent. of a crop. Baldwins are particularly light. The Hudson Valley district has practically a half crop, most of which is of high quality. New York, which in 1916 produced practically one-third of the total commercial barreled apple crop of the United States, shows a decrease of 3,995,000 barrels or 57 per cent. decrease in comparison with last year.

Pennsylvania.—The highly commercial counties of Adams and Franklin are reported with 55 per cent. of a crop, a higher figure than is indicated for most other parts of the state.

Virginias and Maryland.—The upper Shenandoah Valley, growing principally York and Ben Davis, located about Winchester and Martinsburg and including Washington county, Maryland, has only a medium crop. Ben Davis being very light. The Piedmont section, producing Albemarle Pippin and Winesap, has a fairly good or 63 per cent. of a crop, while the lower Shenandoah Valley about Augusta county, shows a like condition. The quality of the apples, particularly in the Piedmont section, is high. It is estimated that the commercial production for the states of Maryland, Virginia and West Virginia will be 696,000 barrels less or a 20 per cent. decrease as compared with 1916. The great number of young orchards coming into bearing in the commercial districts of these states prevents a greater decrease.

Ohio.—The southern Rome Beauty section is very light this year and shows a condition of 25 per cent. as compared with 36 per cent. of a full crop for the state.

Protecting Trees from Mice

With the approach of winter proper precautions should be taken to protect fruit trees from injury by mice, rabbits or other destructive agents. If all litter, mulch or weeds are cleaned away from the trees in the fall, and soil is mounded about them as late as possible before hard freezing, injuries from mice occur much less frequently. An accumulation of mulch and weeds close to the tree base offers ideal conditions for mice to work in, according to horticulturists at Pennsylvania State College.

Screens made of wire with two meshes to the inch and cut 18 to 20 inches square are very efficient protectors against both mice and rabbits, if they are worked down into the soil and the litter kept cleared away from them.

Coatings of undiluted lime-sulphur applied late in the fall are also of value in keeping rodents away from the trees. Winter injury to the crowns can be avoided by mounding slightly around the trunks in the fall, or at least seeing that no depressions occur.

Borers should be dug out carefully in the spring and fall. Coatings of lime-sulphur placed on trunks after the spring search has been made will aid in checking their harmful work.

New Federal Container Law

Under the authority of the Federal law known as the Standard Container Act, the Secretary of Agriculture has issued the regulations fixing the tolerances which will govern in the administration of that act, which goes into effect on November 1, 1917.

It prescribes three standard sizes for "Climax" baskets for grapes and other fruits and vegetables—2 quarts, 4 quarts and 12 quarts—and fixes the dimensions for each; it establishes the dry half pint, dry pint, dry quart and multiples of the dry quart as standards for containers for small fruits, berries and vegetables, and fixes their capacity in cubic inches. On and after November 1, 1917, it is unlawful to manufacture or sell for shipment or to ship in interstate commerce, either empty or filled, baskets or containers that do not conform to the requirements set forth in the law. Containers which are not up to the standards can not be used in interstate commerce even though they are marked "short package." A set of instructions and standard dimensions will be sent to all who request it of the Bureau of Markets, United States Department of Agrl., Washington, D. C.

Farm boys should lay in plenty of nuts and pop corn. It's going to be patriotic to eat them instead of candy this winter.

"For the Land's Sake use Bowker's fertilizers. They enrich the earth and those who till it."—Adv.

Behind This Scene A Pilot Carbide Lighting and Cooking Plant

works without a sound. Silently and automatically it supplies lights for the whole place and—feeds the fire in the gas cooking range in the kitchen as well. The lights, equipped to turn on without matches are the most brilliant and beautiful known—while the gas range is the one perfect cooking appliance now in universal use.

The Pilot has brought these two city conveniences to thousands of country homes in every state. Our hundreds of representatives are permanently located in the districts they serve.

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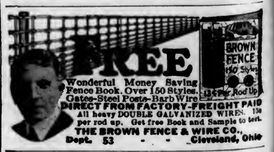
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November Work in the Garden

W. F. MASSEY

Where celery is grown in the Baltimore bed method, the earthing should be continued until really hard freezing threatens. Then cover the whole bed with six inches of earth and then a good cover of straw with corn stalks or bean poles laid on to prevent its blowing off.

With celery grown in single rows the earthing should be continued until hard weather threatens, then open trenches a spit wide and as deep as the celery is tall and pack the plants upright in the trench and cover with boards nailed V-shape as a roof and cover with straw and earth.

From Baltimore southward November is the time to set the early Wakefield cabbage plants for spring heading. Good strong plants are needed but not overgrown ones, for if sown too early and they overgrow, the plants will run to seed in spring instead of heading. The practice has been to make sharp ridges east and west three feet apart and to set the plants low down on the south side. As I found that we are pretty sure to have spells in winter that will excite the plants to growing and a return of cold will kill them, they do better when set on the north side where they are sheltered from the winter sun. Farther experiment has shown that the best way to set fall cabbage plants is in open furrows. We run out furrows east and west and put in a liberal supply of manure or fertilizer. Set the plants sixteen inches apart and deep enough to cover the entire stem. Then set a plant of Hanson lettuce in the spaces between the cabbage plants. These will come out before the cabbages need all the room. In sections where the soil freezes up in winter and remains so it is better to winter the plants in a cold frame, setting them two or three inches apart all over the frame and then keeping them as dormant as possible, only putting the sashes over them when it threatens to drop below 20 above zero.

Plants of lettuce should now be set in the frames for late fall and Christmas heading. The Big Boston is used almost exclusively by the market growers but for family use I prefer to use a closer heading variety which can be planted closer. I shall use this fall Dreer's All Heart. Tennis Ball and Hittinger's Belmont are also good.

November is the time to cover the whole garden deeply with manure. I can only buy fresh manure, and every experienced gardener knows that fresh manure applied in spring requires a long time to become available to plants, since the organic nitrogen must pass through the process of nitrification or change into nitrates before plants can use it. But spread on the ground in the fall and let lie until spring and then turned under it has not heated and lost its ammonia as it would in piles, and has decayed so that it starts with the growth of the early crops to aid the plants. But as stable manure is rather one-sided it needs to be balanced by the addition of phosphoric acid. Therefore in spring I add acid phosphate at the rate of 1000 pounds per acre, and we get good results Without this balancing of the manure there is apt to be rank growth at the expense of fruitfulness. Irish potatoes, for instance, will make immense tops and small potatoes.

By the end of the month all the garden crops should be secured. Late cabbages can be buried upside down with stems left on, or planted upright close together and deep enough to cover the stems and then sheltered from the sun with green pine boughs. Here and southward they can be well kept by turning the heads over where they grow with the top of the head toward the north, and then covering the stem and base of the head thickly with soil, leaving the top exposed but turned away from the winter sun.

Saving Cabbage for Winter

Cabbage may be very easily stored for winter use provided it is in the proper condition at storage time. The extension division of the New Jersey Agricultural College recommends that cabbage be stored during the early part of November. As heads that are exceedingly hard are the first to be injured by the light freezes which occur before this time, it may be well to go over the field of growing cabbage in the last part of October and pull up the very hard heads. Turn the plant completely upside down right where it grew, and it will keep in good condition until the weather is cold enough to store cabbage with safety. To prevent cabbage from heating in storage it should never be placed in large piles. It is usually placed nearly upside down in a trench, made with the aid of a 2-horse plow, 6 inches deep and 2 feet wide. The heads are packed close together in a single layer with the leaves tucked in close around the head. A 6-inch layer of hay is spread over the trench and anchored with a little soil to prevent the cabbage from wilting or freezing until colder weather, when a 6-inch layer of dirt is added, leaving a narrow strip of hay exposed to provide ventilation. A little freezing in the trench is not harmful.

Planting Bulbs for Spring Flowers

The time for planting bulbs for outdoor spring flowers is here. Any time before the ground freezes will suit bulbs of such flowers as tulips, hyacinths, daffodils and crocus, which will furnish such pleasing masses of color about the home grounds in the early spring. Any well-drained garden soil will grow good bulbs, although well rotted stable manure may be added if the soil is rather poor. The depth to plant the different sorts of bulbs varies, but they should be too deep rather than too shallow. About five inches deep will be right for hyacinths and narcissus, and an inch or two less for the bulbs of tulips, crocus, anemone and scylla.

The space to give each bulb also varies with the sort and variety, but the following distances are suggested by J. T. Rosa, Jr., of the University of Missouri College of Agriculture: Hyacinths, 6 to 8 inches apart; narcissus, 8 to 10 inches apart; tulips, 5 to 8 inches apart. Small bulbs, as crocus, scylla and anemone, are generally placed 2 or 3 inches apart. After the ground is frozen, mulch the beds where bulbs have been planted with some leaves or strawy manure. This prevents freezing and thawing, also "heaving out" of the bulbs. This must be removed early in the spring. In the home garden bulbs give more pleasing results when planted among shrubbery and plantings of other flowers than when planted in formal beds.

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Eggs—Selling Them to Advantage

F. V. L. TURNER

Every poultryman looks forward to November 1st as the one of all dates that is to decide his poultry fortunes for the coming year, for on that date the pullets are either a failure or a success. Too, November 1st decides the more momentous question, will egg prices be high or low? Usually the price for eggs around November 1st is higher by one or more cents per dozen or lower by the same number than last year and thereby is determined the season's possible profits. Like the ground hog's shadow, the market must be seen in deep relief to satisfy an expectant and anxious horde of producers.

The recent ruling of the federal government on licensing food handlers, storage warehouses, etc., is going to do one of two things, either flood the market with cheap storage eggs proving conclusively the helplessness of the producer, or it is going to put the "nearby fresh gathered" in the limelight as "more precious than gold." There is a promise, really automatic protection, in this arrangement for the farmer, for this license is not required of the small producer, he who does less than $50,000 a year in total business. Be that as it may—let the slogan be, "A fair profit for our products," therefore, back to the subject in hand. When one weapon will not down an enemy adopt another, one that will.

The menace to fair price to the producer has always rested in the cold storage warehouse—speculator combination of governing produce boards, a strong bit of evidence being adduced on October 11th, past, when New York paid 55 cents for eggs and Chicago 35 cents. Chicago stored eggs in anticipation of export orders which failed to materialize and eggs sold low, while New York bought fresh eggs at a good figure for daily consumption. Egg storage is 400 per cent. more in this country than it was a year ago. Thus we find the able, painstaking egg producer, who possessed the nerve to hold on to his flock, cashing in on his holdings and next season, when the production period comes into being, the storage man is going to bid high in his attempt to lay by the total of the hen's spring product.

Take out of the poultry producing game all elements of chance and at once the very foundation of its structure fails in its support; not alone do cost and profit figure as factors—fertility, hatchability, life itself (in the integrity of the flock), become the elements with which the producer succeeds or fails. Unseasonable weather plays no small part in the eternal risk which is bound about every line of endeavor.

More fully to establish stability in price, production, quality and suitable markets, community efforts will go farther than selected customers, customers more easily lost, through failure of supply in the early fall, than secured when eggs are plentiful in the spring.

When ten or twenty producers form an egg circle, similar to those perfected by the Canadian Board of Agriculture, candle and ship in common, quality instantly commands a place beyond one-man attainment. Storage is just as feasible to a producing community as is egg collection, an ice plant, an electrical enterprise, telephone system or a neighborhood tractor.

There is an organization under way in eastern Pennsylvania which is patterned after the Canadian egg circles, with a membership which will bring about conditions of market and quality heretofore impossible with individual shippers. This organization purposes to collect the entire egg output of a large community (embracing parts of two counties), candle, re-crate and ship to a local agent in New York. Distribution has been arranged for which will give returns 15 per cent. above the open market, thereby assuring a very much better price to the producer, after all expenses are deducted.

Because of the forces back of an organization of this kind express shortages, damage and loss will not only be reduced to a minimum, but express carriers can be forced into settlement more easily and with little expense.

The function of this organization primarily is the collection and distribution of eggs—both feed buying and cold storage will quickly come as a necessary weapon against a common enemy.

Similar organizations will result, just as fruit growers' associations have resulted from the questionable treatment by middlemen. Texas established its famous Onion Growers' Association and pays its manager $15,000 a year in salary while individual growers get a fair profit from a permanent demand brought about by intelligent business methods.

Every poultry raiser owes it to himself to promote these egg collecting and distributing agencies; to formulate in his own community plans whereby eggs can be delivered to a central point, candled, cleaned and crated in attractive manner and secure the additional profit accruing from a proven method.

Canada has made a wonderful success of her egg circles; its national poultry husbandman has given every assistance possible and the Dominion Government itself subscribes money and the time of its employes to the betterment of conditions, all that the producer may profit.

Every business in the United States succeeds along lines laid down as common or practical—failures are due to lack of method; the egg business can be just as successfully carried on for profit as can any other business, but not where there are as many different methods as there are poultrymen.

Getting together among your neighbors, even though there be several small flocks, means a full crate of eggs often enough to avoid trading them in at the nearest store, for a purely local price, in return for necessities.

Later a full description of the Canadian egg circle will be given in these columns.

Worth While Suggestions

The one great job now should be kept going full tilt—DISINFECT.

There has never been a truer saying: A healthy hen lays best.

Ill smelling hen quarters are as unnecessary as a foul stable—DISINFECT.

Every pullet that is to become a fall layer needs your best attention—give way to that satisfied feeling before the profits are made and some of the profit will go into thin air.

Add a little old process oil meal to your mash and hasten the egg laying development; about 7½ per cent. by weight will do the trick.

When eggs begin to appear in various parts of the runs and ranges it is time to pick out the big red-combed young ladies and put them in winter quarters.

Better be safe than sorry—DISINFECT.

The safety valve to poultry success is diligence liberally mixed with close observation.

If you can produce a good crop of eggs with your ration, don't change.

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Feeding Hay and Oats to Poultry

J. RAYMOND KESSLER

In order to secure the best results from one's flock the food must contain a certain amount of bulky material. Bulky food is needed to keep the more concentrated foods from constipating the fowls and to help generally in keeping the mass of more solid food in a porous condition, so that the digestive processes can act fully upon it.

Most moist mashes fed to poultry are greatly lacking in bulky contents. Mashes are particularly liable to form into indigestible balled masses in the crop if they do not contain sufficient bulky matter to keep the sticky meals separated. One of the best bulky foods that can be used is cut clover or alfalfa hay. The hay should be cut very fine with a hay cutter, say in half-inch lengths. However, mealed hay is not desirable, because of its being too much like other meals and likely to pack.

In preparing for feeding, the hay should be soaked in hot water for two or three hours and then added to the meals, using one bucket of the steamed hay to four buckets of mash, thoroughly mixing it through the mash. When first introducing the feeding of hay it is best to begin with a small quantity and gradually increase the allowance until the full amount is fed. The reason for this is that the hens unused to it will at first refuse the mash, but after a few feedings they will eat it without trouble.

The following test will quickly prove the worth of the hay in the mash: Take two handfuls of moist mash, one containing hay and the other not; squeeze both handfuls tightly and note how the one without the hay remains packed and how the one containing the cut hay crumbles on being released. This same action takes place in the crop of a hen and explains why sticky mashes lacking in bulk form balled masses in the hen's crop, causing her to go about shifting her tightly packed crop from side to side in discomfort. Such a condition is only a forerunner of more serious digestive troubles.

PREVENTING MOLD IN OATS.

Moldy sprouted oats is dangerous to feed to poultry, as it will cause no end of trouble; in fact, it is far better to leave the fowls go without green food than to feed moldy green food. Moldy oats may come from a number of causes, such as excessive moisture, moldy surroundings, failure to wash and sun the trays, etc. The oats should be kept damp, but not soggy, and the trays should be scrubbed thoroughly with hot water and washing soda and then laid in the sun and air after every two or three lots of material have been grown in them. If the racks of trays can be kept in quarters receiving some sunshine each day, a great deal less trouble will be had with mold.

However, under the best of conditions mold will sometimes persist, and in such cases the only thing to do is treat the oats. The following method of treating oats intended for sprouting purposes, developed by the poultry department of Cornell University, will be found very effective as a preventive of mold. To 30 gallons of water add one pint of formalin and sprinkle over the oats, using this amount of solution on 30 bushels of oats. The oats should be turned while being sprinkled until the liquid is all absorbed. The heap should then be covered with blankets for twelve hours to allow the solution to thoroughly disinfect the grain. After this the heap of oats should be spread out thinly and allowed to dry. As soon as it is thoroughly dry the oats should be put in bags that have been sterilized by dipping in the formalin solution and stored in a dry place until needed. Oats treated in this manner will keep indefinitely until wanted for sprouting.

Pennsylvania.

Save the Choice Cockerels

Poultry breeders are carrying low stocks of male birds this fall, and indications point to a general shortage of breeding stock in the spring. This condition, due largely to high prices of feed, is important to practical poultrymen.

"People who have been accustomed to buying roosters in January and February to make up their breeding pens," says a poultry expert of the U. S. Food Administration, "are likely to be disappointed next year." To be sure of an early start in poultry operations during the coming season, flock-owners are advised to retain at least a few choice well-matured cockerels. Carrying them through the winter, even at a considerable cost for feed, is a wiser course than depending on the uncertain commercial supply.

Eradicating Chicken Mites

Chicken mites, the night pest of poultry, may not always leave the fowls before daylight, as commonly supposed, but may remain in the feathers in such numbers as to make poultry possible carriers of this pest to uninfested places. This fact was brought out recently by an entomologist of the U. S. Department of Agriculture in the course of a study of the life history and habits of the chicken mite, to discover principles on which combative measures might be based.

To prevent the introduction of this serious pest in mite-free flocks by means of new stock, the specialist suggests these precautions: New stock not known to be free of mites should be isolated the first few nights and allowed to roost on new roosts wrapped with pieces of folded paper. The object of using the paper is to furnish a convenient place for mites to hide. The paper should be examined and if mites are found, the fowls should be kept on these roosts five or six days, or until no more mites come off the fowls. Removing and destroying the papers and treating the roosts thoroughly with kerosene or crude oil, will prevent an infestation.

Selecting the Layers

Early hatched pullets, in fact, pullets of any age, are scarcer than ever this fall and in view of this fact the Pennsylvania Department of Agriculture is trying to help poultry keepers meet the deficiency by urging the saving of all the good, old hens for next year's laying.

The best hens are those still in old plumage, still with red combs and still laying. All such hens are extra good and should be marked and used as breeding stock next spring.

The next best hens are those that are both molting and laying at this time.

The next best are those that are molting rapidly—all at once.

The next best are those that are through the molt and showing full, red combs, although in heavy breeds, such must be especially handled if they are to lay early this winter.

Poor hens are those that are molting badly or slowly or appear dumpy or sick because of the molt. Broken down, runty and scoured hens are all in the class that are sure not to return enough eggs this coming year to pay for the feed they will eat.

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FOR OUR BOYS & GIRLS FARM

THE PRACTICAL FARMER P·I·O CLUB

THE MAGIC WORD:
OR LADDIE AND POLLY IN THE COUNTRY

Written especially for this paper by Uncle George, founder of the P. I. O. Club in The Practical Farmer

INTRODUCTION.

The lights were winking and blinking in the great city. A wet snow was falling and the pavements were all covered with slush, which made them hard to walk on. In a side street of the city, far from the noise of the trolley cars and the danger of the automobiles, there lived a mother with her two children. The father was dead and the woman had all she could do to make both ends meet.

Laddie and his sister went to the big school around the corner where they learned to talk English. They were unusually bright, and Miss MacDugall, the teacher, was so interested in them that she often came to see them. The teacher took a more kindly interest in them because she knew that some day the White Angel would come for the mother and take her away to that land where there is no more work and where everything is comfort instead of toil and worry. But she did not expect that the little mother would go away in the night—the night we are talking about, when the snow came down and turned to rain.

Laddie and Polly had known sorrow all their lives and they were not surprised when the kind neighbors told them that their dear little mother would never come home from work again and that they were now alone. It is thus that we find them, the boy and the girl, seated on the pavement outside their home. The door is locked, the tiny lamp burning no more—the home seemed very, very dark—the world seemed far away and very, very cold.

Polly starts to cry, while Laddie puts his arm around her and tries to comfort her. Just at that moment, a big fat policeman comes along.

"Why ain't you kids at home?" he asks.

"We have no home," replied Laddie bravely.

"Den youse comes wid me," answered the officer, as he helped them to their feet.

In a short while there was a clanging of bells and the patrol wagon drew up. Laddie and Polly were hustled into it and driven away into the darkness of the night.

A great feeling of lonesomeness stole over them as they rode towards the low, dark station house.

(To be continued.)

Dear Boys and Girls:

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Well, what do you think of that? Looks like a Chinese puzzle, doesn't it? I haven't had my typewriter in hand for a few days and I was just getting my fingers warmed up.

Excuse me!

I couldn't sleep last night because I was thinking of what to write to you about and I think it is a bad plan to lie awake. A book I have says it is a waste of time to lie in bed thinking. It is a good book and I believe it.

If you will put down your knitting or stop talking about that baseball game that was played over at Skinnerville the other day, I'll talk to you about the most interesting thing in all the world.

Can you guess what it is?

What is the most wonderful—the most interesting thing in all the world?

The war, some one says. No indeed, there is ONE thing that is far more interesting than the war. It is more interesting to YOU and to each one of us. IT IS OURSELVES.

The most interesting thing in the world is YOU!

I dare any of you to stand up and say that he or she is not more interested in himself or herself than in anything else.

How much do you know about this wonderful thing called YOU?

You are learning every day and so am I, but what are you learning about YOURSELF?

If you are interested in yourself, the first thing to look at is your head. Didn't know you had a head before, perhaps.—Well, you have and so has every other normal human being. Normal means whole, or all right.

Your head is rather important. Take your hat and put it on the top of your clinched fist. See how it wabbles around, that's the way your head wabbles around on your spine. It is tied, but not fastened, to your body by a lot of muscles. When a boy gets hit with a baseball his head wabbles instead of getting broken. Push your hat now and see it move.

It might hurt your feelings if I talk so much about YOUR head, so I will talk about MY head for a while.

Did you ever see the man cut the grass's hair?

You begin to see now what I am talking about. On the top of my head there was once some hair. Now there is a spot like a baseball field as smooth as glass. But the point is, our hair corresponds to the grass on the earth. The earth is round and our heads are round. The earth has grass on top of it and we have hair.

So much for our heads.

Let's see. If we SEE we must have eyes. Speaking of eyes, why do we have two? To keep from making things look like they were flat. Close one eye and hold a book out from you—now touch it. What is the matter? You can't judge the distance.

Did you know that when you walk around you carry the alphabet with you? Well, you do. Be careful not to spill any of the letters.

Let's see: You have two ears, two eyes, ten fingers, ten toes, one nose and a cute little mouth. Are you good at arithmetic? Add these figures up and see what you get. It will be 26, the number of letters there are in the alphabet. Am I right? You are good at arithmetic, I hope. Every one should be good at arithmetic, for it is the universal language. Everybody speaks numbers.

Give a foreigner the wrong change and see how quickly he knows that you have made a mistake.

Once a boy named Johnnie was very bad in arithmetic and his father said:

"John, I will have to help you with your arithmetic. If you had half an apple and I gave you another half, what would you have?"

"I'd have a whole apple," answered Johnnie, promptly.

"If you had half a dollar," said the father, "and I gave you another half dollar, what would you have?"

"I'd have a FIT?" replied the boy.

After the question which his father asked the boy you see a queer little mark, which we call a question mark, like this ??????.

If you will turn your head to one side I will show you where you have the cutest, dearest little question mark tied on to your head. In fact, you have two little question marks—your EARS; Never thought of that, had you, and yet you have been making question marks and looking at your ears ever since you were able to write.

What wonderful things we are. The other day I went out into the yard and tried to find something in Nature which looked like me.

There was the wood pile and I couldn't see that it looked in the least like little me, but the next thing I saw was a TREE and it looked like me, for it had a trunk, like the trunk of my body, and it had limbs, like my arms, and on the end of the tiny branches I saw the leaves with their little veins underneath, just like the lines in my hand. Down in the ground I found roots, which correspond to my little pink toes. That wasn't all, for I found that sap ran through the tree, just as the blood runs through my body.

Is this interesting?

Above all and the most interesting of all is what?

I call it the little telephone inside you and inside me, but some people call it our conscience. Both of us are right.

But I mustn't tell you TOO much this time, for then you will say that Uncle George is tiring you and I never want you to say that.

Always yours,

Uncle George

PUZZLES.

1. How many bright boys and girls can tell me how many feet a horse has? Of course there are his forefeet and—but I almost told you.

2. What state in the U. S. is an island?

3. What is the best school in the U. S.? What is the best home in the world?

Answer these questions on a piece of paper, writing on one side only, and send them to Uncle George, The Practical Farmer, Box 1321, Philadelphia, Pa. I will print the names of the first ten who send in the best answers on OUR HONOR ROLL.

P. I. O. CLUB NEWS

Is it possible that our girls are more "up and doing" and anxious to get into things than our boys? Being a boy myself, I thought it was the other way around—but it seems not; for so far more girls than boys have sent in their P. I. O. pledges and asked to be let in on our secret. Good for you, my nieces! But look here, boys, don't you get a reputation for being *slow!* I know I am going to hear from you as soon as you get around to it—but don't you let the girls beat you in the charter membership. I want just as many nephews as nieces, you know!

Here's what one of our friends writes us:

"I would like to tell the children a cure for 'rainy day lonesomeness.' I dearly love to lie in bed and hear the rain pitter patter on the tin roof, hear it tit-tat on the window pane, and see the drops chase one another in little streams down the glass, watch them make little rivulets in the sand, or tumble together in little pools where they seem to laugh and leap and beckon to others to follow until the tiny dams will hold them no longer and they race away to find larger ponds where children are paddling with bare feet. Flora."

That's right, it's good fun to watch the rain—to see the little rivulets make up the big puddles and the puddles swell into rushing brooks; but I hate to lie in bed any more than I have to when I'm awake. I'd rather be up and hustling, getting my boats ready to be out and among the "paddlers" the minute it stops raining.

Come on, you other nieces and nephews—tell us some of the things *you* like! What are your favorite games and pets and "imaginings?" I want to know—and so do the other P. I. O.'s Let's get acquainted just as fast as we can.

I asked you the other day to tell me whether or not you'd like a story every issue and whether you want puzzles. From the answers so far received it looks as if you want them both. Well, I'm going to try to please you—just say "Nuff" when you've got your fill. Remember what I said the other day—I'm a fellow who believes in giving my boys and girls what they want—not what *I think they want.* It's up to you to keep me posted so that this corner of The Practical Farmer will be really yours.

Honest, I'm swamped with work on our P. I. O. Club and will have to ask those of you who haven't heard from me promptly to wait a little longer. You haven't heard about our wonderful club for boys and girls in the Middle Atlantic States? Look at the last issue of The Practical Farmer, or, better still, write to me. This is the club you have been waiting for. What does P. I. O. mean? Write to me and find out. I want YOU to be the first boy or girl in your district to become a member of our wonderful organization. I've printed the pledge—the "application for membership"—below. Either cut it out or copy it on a letter sheet, sign it and mail to me NOW—and you'll hear from me just as soon as I can get a letter to you.

PLEDGE. 2

Dear Uncle George:

I promise to P. I. O. if it does not interfere with my conscience or my duty to my parents and friends. Please tell me the key to the secret of P. I. O., which I will not reveal except to brother and sister members of the P. I. O. Club.

(Name*).....

(Address) P. O.....R. F. D.....

Age..... State.....

*Write or print your name plainly and don't forget to dot your I's and cross your T's. Address all letters to UNCLE GEORGE, care Practical Farmer, Box 1321, Phila., Pa

Grange Interests

MRS. JENNIE M. RODGERS
Ceres Penna. State Grange

Under a recent ruling of the State Grange all elections of officers for the subordinate Granges in Pennsylvania will be held this year in November. The new officers will not assume their duties, however, until after the regular installation in January. This is to aid the state secretary in getting out the annual register and give some of the new Masters an opportunity to attend the state meeting held early in December.

Our Grange for a number of years has had success during November with a meeting known as "Apple Night." Those of us who grow apples bring five of each kind we have and arrange them on wooden picnic plates, while some of the sisters bring apple pie, apple sauce cake and various other apple products. We always try to have a visiting member judge the apples, although we do not offer premiums of any kind. One member once brought twenty-three named varieties of apples. We try to have our literary program consist of horticultural topics and for refreshments eat our apple and apple product exhibits.

I have often wondered how many Granges have a printed program for their meetings four months to a year ahead. In a number of cases I have known where it was the means of putting renewed interest into the Grange literary work. It is not essential that the program for each meeting be printed completely, as some can be designated in charge of various committees and the details left for them to work out. It is well, however, to have a working basis for the meetings over the time specified, so that members may know what to expect and when they will be called upon to take part. Cost of the programs, of course, depends on the number needed and the style desired. It should not be lost sight of, however, that 200 cost very little more than 100, and a few wisely distributed among other Granges, as can well be done at a Pomona meeting, will be the means of bringing you visitors and keeping your organization in the mind of others.

From a Patron in Michigan I learn that their Grange had a jolly party some time ago when all the grown people went dressed as children and all the children dressed as grown people.

Looking over the recently published report of National Secretary Freeman, I find that for the year ending September 30, 1917, there were 46 new Granges organized in Pennsylvania, 23 in New York, 14 in West Virginia, 12 in Maryland and one in New Jersey. In the whole United States there were 477 new organizations, and Oklahoma led with 67. Out of the 15 Granges reorganized during the year I find Pennsylvania and Delaware are each credited with one. Surely this total of nearly 500 Granges started to work this year will have some effect in molding farm sentiment.

November always brings us the National Grange meeting, and this year it will be held in St. Louis, Mo., from the 14th to the 23rd. Friday, the 16th, will be the degree day, when all the lower degrees will be exemplified and the seventh given in full form at the evening session. The following afternoon will be the annual assembly of Demeter and it alone is well worth the trip to St. Louis. Next year, I understand, the national meeting will most likely be held some place in New York State, when many of us Middle Atlantic members will be able to attend.

The Editor's Book Review

Below are comments on some of the more recent books which have come to the editor's desk from their publishers. The modern farmer is a reading farmer of course, and like other business men we believe our farmers are building up libraries by the occasional purchase of books on farm subjects in which they are interested; in no other way can a farmer improve so rapidly or substantially in his chosen calling as by reading the best in farm papers and books and preserving for reference the written accounts of the experiences of others.

For our readers convenience, we will be pleased to furnish at the publishers prices any of the books reviewed below, of any other obtainable books on farming. Further, we will be glad to give suggestions regarding books on any given farm subject on receipt of request with stamp for reply.—The Editor.

MANUAL OF MILK PRODUCTS, by William A. Stocking, Professor of Dairy Industry at Cornell University. The Macmillan Co., New York. 573 pages, illustrated. $2 net.

There is hardly any phase of the milk products question which this up-to-date book fails to treat. At no previous time have world markets offered the prices which they offer today for milk products and any study given this subject is well worth while. The best methods for making and handling these products have been brought together by the author out of the great mass of material on this subject which has accumulated in recent years. Because of its completeness, the book should be found in every library whose owner handles milk products.

WESTERN LIVESTOCK MANAGEMENT, edited by Ermine L. Potter, Professor of Animal Husbandry at the Oregon Agricultural College, assisted by the horse, sheep and swine specialists of the same college. The Macmillan Co., New York. 446 pages, illustrated. $1.75 net.

This book is just what the title indicates and not a treatise on how livestock ought to be kept in the West. For the stockman acquainted with these conditions, therefore, some of it might be familiar reading, but for the beginner or livestock student it possesses a mass of facts. The book is divided into five parts devoted to general conditions, beef cattle, sheep, horses and swine respectively. The manuscript had many revisions before appearing in the present form as it appeared first as mimeographed notes and later as printed circulars for use at Oregon Agricultural College.

FEED MANUAL AND NOTE BOOK, by F. W. Woll, Professor of Animal Nutrition, University of California. J. B. Lippincott Co., Philadelphia. 137 pages. 80 cents net.

This is a paper bound book 6½x9 inches and is intended primarily to meet the laboratory needs of agricultural students. It can be well used, however, as a guide in compounding various rations and working out many problems which present themselves on the farm. Ample space is left in the book for students' notes and experience has shown that a great deal of interest is taken in a subject presented as in this manual. While the manual is based on the author's "Productive Feeding of Farm Animals," it can be used with any text or reference book on this subject.

THE STRAWBERRY IN NORTH AMERICA, by S. W. Fletcher, Professor of Horticulture at the Pennsylvania State College. The Macmillan Co., New York. 227 pages, illustrated. $1.50 net.

This book has a strong appeal not only to the grower, but to all consumers of strawberries, as it is a history of the evolution of this fruit in North America, as well as being a practical guide to strawberry growing. Early European culture of this fruit and its rise to second place after the apple in commercial importance in this country is carefully traced.

THE NUTRITION OF FARM ANIMALS, by Henry Prentiss Armsby, Director of the Institute of Animal Nutrition of the Pennsylvania State College. The Macmillan Co., New York. 708 pages. $2.60 net.

For the practical stock raiser who wants to study the natural laws governing the nutrition of farm animals rather than the actual practice, and the agricultural student, this book is excellent. It presumes that the reader has an elementary knowledge of chemistry and physics, otherwise much of the material in it would be incomprehensible.

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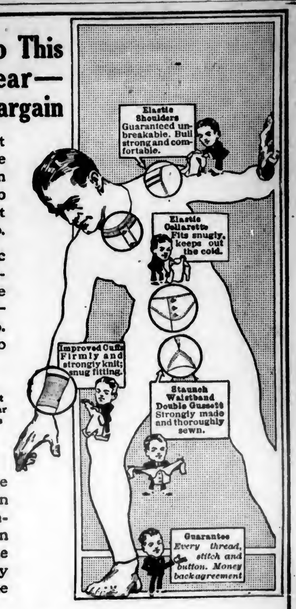

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729A2022	2	55 pounds	10 years	1.88
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Maynard No. 6 (For 3 to 35 Cow Farm) *Order Catalog No. 734A6* — $2.00 with your order, then eleven monthly payments of $4.46 each, or cash in full with order $48.45

Bathroom Outfit $55.80

Bathtub, 5 feet long, of cast iron, lined with white porcelain enamel. Furnished with No 4½ nickel-plated brass Fuller bath cock for hot and cold water. Nickel-plated brass waste and overflow pipe; tub offset nickel-plated brass supply pipes with floor flanges. Lavatory of cast iron, size 18x21 inches with 8-inch back, 4-inch roll rim; porcelain enameled in one piece, with "D" pattern bowl. Has two nickel-plated brass low down compression basin cocks with china index tops. Two nickel-plated supply pipes to wall; 1¼-inch nickel-plated brass trap to floor; chain and rubber stopper. Closet bowl is syphon washdown, of best vitreous earthenware. Seat is polished golden oak. Nickel-plated brass offset hinges. Seasoned oak tank, golden polished; lined with copper; 6½-gal. capacity. Rubber ball valve and improved flush valve operated by push button. Furnished with nickel-plated brass supply and flush pipes. Shpg. wt., 490 lbs.

26A0400 For lead pipe connections, complete $55.80
26A0401 For iron pipe connections, complete $56.05

For full line of Plumbing Supplies, Mechanics' Tools and Accessories, see pages 800 to 872 of our catalog, "Your Bargain Book," which you have in your home

There's Money in Trapping

Farm boys—and grown-ups, too—can pick up many dollars this Fall and Winter by trapping. Furs were never so expensive as now and the demand is steadily increasing. Skunk, Opossum, Mink, Muskrat, Raccoon, Badger, Coyote—every one of these little animals yields a pelt worth real dollars to you.

"Your Bargain Book"—our big 1000-page General Catalog which you have—illustrates and describes everything the hunter and trapper needs. Astonishing values, wonderful variety and surprisingly low prices.

Oneida Jump Traps With Chains 15c Up

These are strong, single spring traps; light and compact. For larger and more powerful traps, see page 672 of "Your Bargain Book."

17A2206 For Rat, Gopher, etc. 4-inch spread. Price, per dozen, $1.73; each, 15c
17A2208 For Mink, Muskrat and Skunk. 5¾-in. spread. Per dozen, $3.05; each, 26c
17A2210 For Badger, Fox, Coyote, etc. 6½-in. spread. Per dozen, $5.95; each, 50c

Genuine Victor Game Traps

Every trapper knows these celebrated traps. Our prices are extremely low as you will note:

17A2200 Spread, 3½ inches. Price, per dozen, $1.22; each, 11c.
17A2201 Spread, 4 inches. Price, per dozen, $1.44; each, 13c.
17A2202 Spread, 4½ inches. Price, per dozen, $2.16; each, 19c.

Sure Catch Trappers' Outfit

17A2320 Special offer for the hunter who would like to set a few traps. The outfit contains one Jump Trap No. 0; one Victor No. 0; one Jump No. 1; one Victor No. 1 and one Victor No. 1½. These traps are suitable for catching Muskrat, Skunk, Gopher, Mink, etc. We include ½-lb. package of Rapid Tanner; a 2-oz. bottle Game Lure and a Trapper's Guide. Price, complete $1.25

Wheelbarrow Bargain

Steel Wheel

$2.80

1A3492 Made of selected hardwood, painted red and strongly braced with wood. Removable sides. Has a well made steel wheel, 18 in. in diameter. Bed is 26 in. long and 11½ in. deep. Shpg. wt., 45 lbs. Price, each $2.80

The Maynard THI

Guaranteed and Sold on 60 Days' T

Burns Gasoline or Kerosene

The High Cost of Farm Labor and its great scarcity makes gine almost a necessity on farm, but the high cost of gasoline has made many farmers feel that the operating an engine burning gasoline only would be prohibitive.

Here Is an Engine power at a very low cost because it burns cheap just as well as gasoline. It is a high compression, throttle governed engine especially for the use of kerosene. It is equipped with the new model kerosene with automatic air valve and water spray valve. There are no attachments, no co adjustments necessary to change from gasoline to kerosene or from kerosene to gasoline is equipped with genuine Webster Magneto, guaranteeing steady and reliable ignition. double heat-treated drop forged crank shaft, fuel tank enclosed in cast sub-base, shield over moving parts, spark advance and retard lever speed control, hopper cooled water jacketed cylinder and cylinder head.

We Warrant the Maynard to develop more than its rated horse We sell it at a price lower than dealers ask for their lowest priced gasoline We ship it to you with the distinct understanding and agreement that you may days, giving it every test you care to give it, and if it is not entirely satisfactory ship it back to us at our expense and we will return the purchase price and any charges paid by you. You cannot ask for a more liberal offer than this. We are ship promptly from our big stocks in New York.

The Maynard Jr. 1½-Horse Power Gasoline Engine

Type, Gasoline only. Four-Cycle Horizontal. Bore, 3½ in. Stroke, 5 in. Normal 500 R.P.M. Maximum speed, 600 R.P.M. Diam. flywheel, 16 in. Weight lbs. Diam. crank shaft, 1¼ in. Capacity water hopper, 1½ gals. Capacity fuel gal. Length of piston, 4 in. Diam. of pulley, 4 in. Face of pulley, 3 in. Shpg. wt., The 1½-H.P. Maynard is built for the use of gasoline only on account of the amount of fuel used to run it. The 1½-H.P. differs from the other sizes also in the cylinder head is not water jacketed but is air cooled instead. In all other respects the design is the same.

740A84 Maynard 1½-H.P. Gasoline Engine, with batteries. Price ..... $28.
740A85 Same Engine, complete with Webster Oscillating Magneto. Price ..... $34.
740A841 Hand truck, four 12-inch wheels, for mounting this engine. Price .....

The Maynard 3-Horse Power Engine

Type "K" Gasoline-Kerosene Four-Cycle Horizontal. Bore, 4¼ in. Stroke, 6 in. S speed, 450 R.P.M. Maximum speed, 550 R.P.M. Diam. flywheel, 21 in. Weight flywheel, 81 lbs. Diam. crank shaft, 1 9/16 in. Capacity water hopper, 3½ gals. C fuel tank, 3½ gals. Length of piston, 5½ in. Diam. of pulley, 10 in. Face of pu in. Shipping weight, 450 pounds. Webster Magneto Ignition.

The 3-H.P. Gasoline-Kerosene Maynard will operate a centrifugal pump, saw operate a corn sheller, feed grinder, cream separator, churn, etc. Equipped with the Webster Oscillating Magneto.

740A86 Price, as described ..... $62.
740A842 Hand Truck with four 12-inch iron wheels for mounting this engine, w 140 pounds. Price, each .....

We can supply horse trucks, portable sawing outfits, pumping outfits and other eq to go with these engines. Ask for a free copy of our FARM BARGAIN BOOK.

PLEASE GET OUT "YOUR BARGAIN BOOK," OUR 1 CATALOG WHICH YOU RECEIVED FROM US THIS

Some Extraordinary Savings

IF EVERY farmer knew how low our prices, fine splendid the qualities and how doing this Fall, and that would be saying a great deal, because so far this season our large quantities of goods, bought long ago at prices far below the present market, "Your Bargain Book," our big 1,000-page catalog which we sent you this Fall. If

Monarch Wide Tire Farm Wagon $55.00 *With Box and Seat*

We believe this is the best Farm Wagon on Bargain on the market today. Read the specifications, remember the 5-year guarantee, and that you can have your money back if you wish, and order now and take your time with 8-in. burrs and a capacity of 10 to 30 bushels an hour; with 10-in. burrs and a capacity of 20 to 60 bushels an hour. Main frame is one casting. Cob breakers are chilled from spiral concaves bolted to sides and bottom of main frame. Bearings are extra long and lined with best babbitt. Main shaft is 1½ in. in 8-in. grinder and 1½ inches in 10-inch grinder. Feed is adjustable. Burrs are of a special design and are harder than tempered steel. They will not heat the grain while grinding. We furnish three styles of burrs—fine for shelled corn and small grain, coarse for ear corn or for making feed from shelled corn, and extra coarse for grinding ear corn (either dry or damp) for feed; 8-inch mill requires 3 to 6-horse power and should run 100 revolutions per minute per horse power.

719A1093 With 8-in. burrs, pulley and steel hopper $20.00
719A1095 With 10-in. burrs, steel legs and hopper and 70-in. balance wheel. Shpg. wt., 400 lbs. Price $27.50

Farm Wagon Stock Fe $8.70 Up

Order one of these pages subject to strik cold rolled steel with Door, 12x15 inches. chunks. Kettle of ste wide flange around top elbow joint of 6-inch Shipped from factory i

919A1328 15-Gal. 8 919A1328 36-Gal. 8

$14.10 Monarch Hand

Has hardwood frame large steel table, non-chopping cast iron instantaneous adjustment small size, hand power, fu

719A1055 Small 5½-inch knives. 719A1067 Large

in trying the wagon. Gear—The bolsters, hounds, spokes, reach and tongue are of selected well seasoned oak. Hounds are square and are braced from the front over a sand bolster and axles. Bolster stakes are braced on both sides and fitted with edge irons and two rings. Axles are 3½x4½ inches, of seasoned hickory, fitted with 3¼x10-inch Timken skein. Wheels are 36 and 44 inches high, with 3x8-inch tires; (4-inch tires can be furnished at extra cost if desired). Standard wheels with seasoned oak hubs. Oak and hickory spokes and rims. Rims bent and set on by hydraulic pressure. Box, 10½ feet long by 24 inches high, with Comstock pattern end-gate, and either 38 or 32 inches wide, depending on track selected. Track, either 4 feet 8 inches or 5 feet. Be sure to state which track is wanted. Box is painted red, and the gear and wheels are a rich red, varnished and striped.

931A1225 Monarch Wide Tire Farm Wagon, complete, with 3x8-inch tires. Shpg. wt., 1,000 lbs. $55.00
Price, shipped from factory in Indiana.
If 4x8-inch tires are wanted, add $3.50 to above price.

WE ISSUE A BIG FREE FARMERS' AND STOCK RAISER trating, describing and pricing thousands of articles every good farmer and stock raiser a letter and say "Send me your free Farm Book," and we will mail it promptly, free send now—today! We can save you at least a third—perhaps a half.

The Charles William S

L FARM POWER

The Maynard 5-Horse Power Engine

Gasoline-Kerosene Four-Cycle. Bore, 4¾ in. Stroke, 8 in. Normal speed, ximum speed, 500 R.P.M. Diam. flywheel, 26 in. Weight each flywheel, rank shaft, 1⅝ in. Capacity water hopper, 6 gals. Capacity fuel hopper, of piston, 6 in. Diam. of pulley, 12 in. Face of pulley, 6 in. Shpg. wt., er Magneto Ignition.

Gasoline-Kerosene Maynard is the best all around farm engine on the market. e most practical size. It delivers all its power at the belt pulley, smoothly wheel on a truck, the 5-H.P. Maynard makes the ideal all around engine work on the farm.

as described $87.00

The Maynard 7-Horse Power Engine

Gasoline-Kerosene Four-Cycle Horizontal. Bore, 5½ in. Stroke, 10 in. 350 R.P.M. Maximum speed, 450 R.P.M. Diam. flywheel, 36 in. Weight 50 lbs. Diam. crank shaft, 2 in. Capacity water hopper, 12 gals. Capacity gals. Length of piston, 7 in. Diam. of pulley, 14 in. Face of pulley, 8 lbs. Webster Magneto Ignition.

Gasoline-Kerosene Maynard is a heavy duty engine, large enough for all the It will run to a 10-inch feed grinder, a 12-inch buhr mill, a 12-inch with blower elevator or a 16-inch ensilage cutter with conveyor elevator. roll husker and shredder, a four-hole corn sheller, a power hay press or saw.

as described $128.00

ed to receive it please borrow one from your neighbor, and look carefully ages before you spend a dollar for anything in Marine Motors. 100,000 prices this book—every price meaning a big saving to you. We guarantee to y just as we guarantee our goods to give satisfaction.

Farmer and Stock Raiser

arieties of goods we carry, we would be doing ten times the business we are than double the volume we received up to this time last year. We own samples on this page, but if you will find thousands of them shown in ook your neighbor to lend you his book.

Keep the Horses Warm This Winter

You can't afford to buy a stable blanket, a horse blanket or a lap robe until you have gone through pages 118 to 121 of our Free Farm Bargain Book. See these examples:

Stable Blankets

32A3900 Good Quality Burlap Stable Blanket, reinforced at breast and under fastener, 2¾-in. girths; 6 inches long; weight, 6 lbs. 95c
32A3902 Same as 32A3900, except half lined with napped jute lining. Price, each $1.30
32A3903 Best Heavy Burlap Stable Blanket, with full napped jute lining, two 1¼-in. girths. Length, 76 in.; wt., 8 lbs. Price, each $1.69
32A3940 Made of heavy tan duck, quilted to a full, heavy felt lining, splendidly trimmed, fancy 2-in. girths; 76 in. long. 32A3930 This Extra Strong Stable Blanket is made of brown duck, full lined with heavy felt, reinforced front, 2-in. girths; length, 76 in. Wt., 8 lbs. $2.15
32A3931 Same as 32A3930; but length, 80 in. 3.30

Horse Blankets

32A3702 A Strong Warm Service Blanket at an exceptionally low price. Brown with blue and white stripes. Size, 76x80 in.; wt., 6 lbs. Price $2.25
32A3704 Same as 32A3702, but size 84x90 in. $3.20
32A3713 Very heavy blanket, brown and white stripes and border, for work horses. Size, 80x84 in. $2.95
32A3714 Same as 32A3713, but size 84x90 in. 3.38
32A3717 This is the greatest blanket made for hard service. Warm red-brown body, border red and blue. Guards of canvas sewed to prevent tearing. Size, 84x90 in.; weight, 8 pounds. Price, each $3.85
32A3632 A handsome blanket of extraordinary wearing qualities. It is a dark blue and brown plaid with contrasting stripes of red and green. Wool is 85 per cent wool; balance, cotton fiber, giving extra strength and unusual wearing qualities. Size, 80x84 in. Price $5.90
32A3633 Same as 32A3632, but size 84x90 in. 6.35

New York City.

Some Sample Values from Our Big Hardware Store

Look at these prices—Then see complete lines on pages 818 to 972 in "Your Bargain Book"

Ball Pein Hammer

1A5602 Forged of best crucible steel, correctly tempered. Will not soften or chip. Furnished with selected hickory handles. A rare value in "quality" hammers.

Wt., lbs.	1	1¼	1½	1¾
Price	50c	53c	56c	61c

Chilled Face Anvils $2.10 Up

71A5428 Made of best quality cast iron, properly tempered. Face is smooth and accurately machined. This well shaped, sturdy anvil at the price we offer it is a remarkable value.

Wt., lbs.	50	70	100
Price	$2.10	$2.94	$4.20

Standard Claw Hammer 53c

1A9244 This hammer is forged from crucible steel, perfect in temper. Plain face, adz eye, full polished. Handle of second growth hickory. A hammer that hangs right. Wt., 1 lb. without handle. Price 53c

Shingling Hatchet 67c Up A Real Bargain

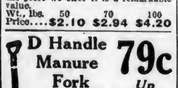
1A9236 Best Quality Shingling Hatchet. Forged crucible steel, oil tempered finish, hickory handle. Most durable cutting edge, round sharp, ready for use. A real bargain.

Size No.	3 Bit	Size No.	3 Bit
4 inches. Wt., lb.	7 oz.	4½ in. Wt., lb.	12 oz.
Price	67c	Price	72c

Big Bucksaw Special

1A6655 You will be surprised at the speed and ease with which this saw cuts. When handled properly it will never wedge or choke up. The frame is made of hardwood in its natural finish and will not warp. Fitted with the coarse Champion "M" tooth blade, 30 inches in length by 2¼ inches wide. The rod is heavily tinned to prevent rust. Shpg. wt., 5 lbs. Complete 73c

D Handle Manure Fork 79c Up



71A1868 Made of the finest materials by a company famous for the manufacture of high grade farm implements. Made with 12-inch pedestal spring tempered oval steel tines. Bent hardwood handles with malleable D heads; capped and strapped ferrules. The fork for the farmer that wants the best. Shipping weight, 3½ pounds.

No. of tines	4	5	6
Price, each	79c	98c	$1.10

General Repair Forge $6.30

71A4826 Here is a money-saver. A well-designed, strong, high grade forge, with good deep hearth, braced legs and half hood, hearth, 18 inches by 18 inches in diameter. Fan case, 8 inches in diameter. Height of hearth, 33 inches. Ideal for farm and general repair work. Will soon pay for itself. Complete, with half hood, as illustrated. Shipping weight, 60 lbs. Price, each $6.30

Michigan Pattern $1.02

71A6400 Michigan Pattern Ax, with handles. Black oil tempered finish. Rustproof. The ax for the woodsman—low in price and high in quality.

Weight, 3 lbs.	Price	$1.02
Weight, 4 lbs.	Price	1.05
Weight, 4½ lbs.	Price	1.09

Maynard Active Range

Burns Hard or Soft Coal, Coke

Made of heavy gauge steel, mixed with copper to resist rust. Lined with asbestos millboard. Bright nickel trimmings. Furnished with combination duplex grate. The Maynard is an excellent baker and roaster. The oven measures 18x18x12 inches and has large flues on five sides to give an even heat. The door drops down, forming a shelf when oven is open. Fitted with large wooden handle, always cool. There is also a thermometer in the door. The cooking top is sectional, each section bolted and braced to prevent cracking or warping. The "servoir," which holds about 16 quarts, is made of cast iron, lined with white porcelain; Japanned covers, hinged in center. The fire box measures 16½x6¾x6⅝ inches and works on the hot blast principle. It has a three piece ventilated fire back, with air space behind the grate. The front grate is ventilated, and the end liners can be removed for burning wood. Has side draft and special pouch coal feed, also front door for feeding wood and will take pieces 19½ inches long. The warming closet is large and has roll door. The ash pit has a large pan, and ashes can be removed easily. Size of main top, 24x42 in. Height of main top, 31¾ in. Smoke pipe, 7 inches. Has 416 8-inch lids. Shipping weight, 325 lbs.

$33.75

720A1080 Price, complete with nickel-t lid lifter, grate shaker and flue scraper $33.75

We can furnish this range without high closet, without reservoir, or without both, at lower prices. See page 825 in "Your Bargain Book."

$1.10 for 100 Carriage Bolts

1A6020 A fine assortment for ordinary repair work. This package, made up from regular stock, consists of six each ½x2½, ½x3, ½x4, 2½, 3 inches; six each 5/16x1½, ⅜x2½, 3, 3½ inches; 4 inches; six each ⅝x2, ⅝x2½, 3, 3½ inches; five each ¾x4, 5 inches. Just the thing for repairs around the farm. Shpg. wt., 9 lbs. Per package $1.10

Carpenters' Standard Saws

1A7006 These saws, a most popular style, we highly recommend to anyone who wants a high grade saw at a reasonable price. Made of high grade steel, scientifically tempered, ground thin on back, properly blocked and hand set. Full bevelled, hand filed. Beechwood handle, nickel plated screws.

Hand Saws			Rip Saws		
24-inch 7, 8, 9, 10, 11 or 12 Points	26-inch 6, 7, 8, 9, 10, 11, 12 Points		24-inch 5, 5½ or 6 Points	26-inch 5, 5½ or 6 Points	28-inch 4½, 5, 5½, 6 Points
$1.27	$1.38		$1.27	$1.38	$1.47

Arc Ground Tuttle-Tooth Crosscut Saws $3.36 Up

71A6200 Ground six gauges thinner on the back edge than on the tooth edge, insuring rapid cutting and easy running. Order today! Prices does not include handles. Please give length desired.

5 Feet Long	5½ Feet Long	6 Feet Long	6½ Feet Long	7 Feet Long
Wt., 7½ lbs.	Wt., 8¾ lbs.	Wt., 9¾ lbs.	Wt., 10¼ lbs.	Wt., 11 lbs.
$3.36	$3.65	$4.00	$4.30	$4.62

Round End One-Hole Corn Sheller $7.80

This one-hole corn sheller fully meets the needs of the average farmer. It is well made, runs light and does first class work. Frame work is made of heavy hardwood, strongly bolted together, making every part firm and rigid. Shaft bearings are all bored true to size and on the crank side of the sheller the three bearings are connected so that they cannot get out of line. Shafting is cold rolled steel; balance wheel is large and heavy, insuring even, light running. The feed spout is placed directly over the shelling wheels and wheels grip the ears as soon as they enter sheller. The spring can be adjusted so as to properly handle ears of any size and do clean work. Also with pulley to be run by power. Shipping weight, 145 pounds. Shipped from New York City. $7.80

719A1002 Sheller, complete, with fan and feed table $7.80
719A1005 Extra for 8x12-inch clamp pulley to be run by belt 60c

Tilting Table Pole Saw Frame $18.85

Substantial saw frame is solidly built and rigidly braced. It can be used either for long pole work or cordwood. Frame is heavy, dry hardwood, there ably bolted and braced, making it extra strong and durable. Shafts are 1½-inch cold rolled steel, running in long babbitted bearings. The table is hung on heavy hinges with long easy bearings. The long shaft carrying balance wheel extends entirely across the frame. Any size blade from 20 to 30 inches can be used. Shpg. wt., 50 lbs. Shipped from New York warehouse or factory in Pennsylvania. Prices do not include saw.

719A1619 Right Hand Frame, Price $18.85
719A1620 Left Hand Frame, Price $18.85

You will find a full assortment of circular saws for this saw frame on page 940 of "Your Bargain Book."

Bi-Treadle Ball Bearing Grindstone $5.25

1A343 Put this remarkable Grindstone on your place for $5.25. Pay more for a grindstone if you wish, but you cannot hope to get one any better than this one. Entire frame is made of rigid steel. The superb even grit grinding stone is mounted on ball bearings and fairly spins around with the slightest pressure. A comfortable seat is built on the frame. The steel frame of course will outlast many wooden ones. The water supply is regulated by funnel shaped tank that feeds steadily and evenly. Journals are ball bearing and are made so that the balls cannot fall out. Shipping weight, about 190 pounds.

While this is one of the biggest grindstone bargains ever offered to our customers, you will find in "Your Bargain Book," our big 1000-page catalog which you have, just as big bargains in all kinds of tools and machinery all at prices which mean big savings.

Price, each $5.25

103 Wall Paper Samples FREE

Here is the best wall paper book of the year.

Don't spend a cent for wall paper until you have seen these wonderful designs and 103 free samples. Simply say "Send me your free wall paper samples," and we will send them to you by mail, free and postpaid.

Bellmore Hammerless Shotgun $14.75

12-Gauge Double Barrel

17A6250 Made of armory drop forged tool steel, factory tested. One barrel full choke, other modified choke. Smokeless or black powder. Side lock action, easily taken apart. Safety slide locks triggers, accidental discharge impossible. Walnut stock and fore end. Weight, 7½ to 8 lbs. 12-gauge, 28, 30 or 32-in. barrel.

Price $14.75

Marsh King Hunting Coat $2.15

17A1858 Made of 10-ounce standard duck; heavy drill lined, olive tan color. Full skirt inside game pocket with entrances at front edges and side seams. Four large outside shell pockets with flaps. Outside breast pocket. Also whistle pocket with flap. Fine corduroy collar. Corduroy lined adjustable cuffs; horn buttons; 36 to 48 chest. Price $2.15

Leader Single Barrel Shotgun *12-Gauge* $4.39

17A6475 This shotgun is a splendid bargain. Made with armor steel barrel and drop forged frame; much stronger than a cast frame. Case hardened and fully tested at the factory. Barrel is full choke bored, and shoots black or smokeless powder. Has top lever action and low rebounding hammer. All parts carefully fitted. Wt., 6½ lbs. 12-gauge, 30-inch barrel. Price $4.39

MUTILATED TEXT TIGHT BINDING

Work for the Winter Months

OUR EXPERIENCE POOL

We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC NO. 1231, NOV. 15.—Tell us your experience applying lime to the soil. What form did you use and how much per acre? When, where and how did you spread it? How do you tell when it is needed? To what extent and where most has it paid you?

TOPIC NO. 1232, DEC. 1.—What have this year's crops taught you regarding fertilization? Was top dressing the wheat with commercial fertilizer a success? Did a light dressing of manure help your hay? Did the potatoes miss the 10 per cent. of potash? What made your corn good on the mellow ground? Don't try to answer all these questions, but tell us in 250 words something along these lines which you have proved to your satisfaction this year.

TOPIC NO. 1233, DEC. 15.—Do you belong to a cow testing association? What benefit have you derived from it? How many members and cows in it and what does it cost a year? If you do not think they are good things write and tell us your objections. If you weigh and test your own milk each day tell us how you do it and what you have gained by doing it.

E. O. J., Woodlawn, Md.—My ambitious plans for winter work are rarely accomplished, though my one man and I always work steadily. On rainy days we cut fodder for the cattle, do repairing or indoor carpentering. One job for clear days is cutting wood in the woodlot. It is hauled to the barn and sawed into stove lengths by gasoline power. By February there is a mighty pile and no more is needed before the middle of December. We fill our large ice house when the thick ice is available. A strip of young trees sprung up in a meadow. Before long they had appropriated some good land and cut off a fine view. These I am grubbing out on winter days and am glad to report progress. A substantial portion of each day goes to the care of my small dairy herd.

A state road divides my land into two parts. Perhaps my keenest ambition is to beautify this highway and my farm by cleaning the hedge rows. Because of the rush of summer work these have grown. I have succeeded in eliminating a quarter of a mile on each side, have cultivated the fields to the edge of the road until I could seed it in grass. So beautiful is the cleared portion that bit by bit all shall be done.

J. E. F., Wellsboro, Pa.—We have a 6 H. P. steam engine and thresher, ensilage cutter, feed mill and wood saw. We are now threshing and filling silos with our outfitt. Can thresh 100 bushels of oats per hour quite easily. Last fall I filled 13 silos. Can fill a 12x30 foot silo in about 16 hours when corn is good, and cut the silage into ¾-inch lengths. During winter months we grind feed for self and neighbors, also cut wood more or less. I have never used a gasoline or kerosene engine, but believe it will not be long before the kerosene tractor will be used on every farm. Farmers are very slow trying them out in this locality.

Our feed mill can grind 20 to 30 bushels per hour, depending on condition of the grain. We generally grind two days out of a week, thus having fresh ground grain for our own stock and helping the neighbors out.

J. M. C., Harrisburg, Pa.—We always try to collect and saw into stove lengths our year's wood supply during the winter. Before we had our own gasoline engine we had the traveling outfit come in to do the sawing, but like our present way a great deal better. We try to cut only trees in the woods which are crowding others or for various reasons have become damaged. Instead of cutting everything into 4-foot lengths we find it a great labor saver to have them irregular sizes, depending on their weight, as the circular saw can cut them a great deal quicker than an ax.

Our engine is mounted on an old wagon running gear which has low steel wheels. We find it a great convenience in moving the engine from place to place, such as to the wood pile or to cut fodder. We have a 4 H. P. engine which has given satisfactory service for six years with practically no expense for repairs, only new batteries and oil cup glass.

M. L. S., Beverly, N. J.—When it comes to winter work I think my combination for cutting fodder and sawing wood cannot be surpassed. After all the crops are in so there is no more need for the barn floor, I rig up the feed cutter and circular saw with the engine an equal distance between them. In front of the cutter, which is in the back part of the barn, I have cut a hole in the floor so that the cut fodder falls into the corn feeding alley without any extra handling. The saw is set in place just inside the barn doors so that we can back up and throw off a load of wood or have a large pile just outside but still within easy reach if we cannot for any reason cut it as soon as we haul it. The same belt, by merely changing it from one to the other, will run both machines and by setting them as I have we do not have to run a twisted belt on either one. Before we cut all our corn stover for the stock it used to take a great deal more hay to see us through the winter. The hard pieces which the cows do not eat make an excellent absorbent.

100 Pound Unit for Potatoes

No standard measure for the handling of potatoes is uniformly accepted in the United States. In certain states various units of measurements have been established through usage. For instance, Maine has adopted the 165-pound barrel; Washington, the ton; New York, Michigan, Wisconsin and others, the bushel; and Colorado, Idaho and Oregon 100 pounds as the basis. The confusion caused by the wide difference of units of measurement has led to the demand for a uniform standard to be adopted for the entire United States.

A joint committee representing the growers and the shippers and distributers held a conference in Washington recently. This committee went on record as recommending that the Bureau of Standards be urged to take the necessary steps as soon as possible toward the establishment of 100 pounds as the unit upon which price quotations and the buying and selling of potatoes shall be based throughout the United States.

Lou D. Sweet and E. P. Miller, potato experts with the United States Food Administration, heartily endorse this action. Such a unit will facilitate handling and will be fairer to producer and consumer alike.

[We heartily endorse this idea and think it would work to the satisfaction of all concerned. Write and tell us what you think about it.—EDITOR.]

Durability of Fence Posts

While various kinds of timber differ in degree of durability when used as fence posts, those made from the same species of tree may also show marked differences in this regard. The rapidity of growth of the tree and the position which the post had in the tree determine the length of the period of usefulness of a fencepost.

A survey made by foresters of the Ohio Experiment Station brought the information that osage orange posts last longest in the soil, while yellow locust and red cedar come next. Considerably below these in percentage of sound posts stood mulberry, and then white cedar and catalpa. Chestnut, oak and black ash follow in the order named.

Posts from rapidly growing trees were found to decay quickly. The wood at the center of the tree is not as durable as the more recent heartwood just beneath the sapwood. Trees tend to decay at the heart first. The idea that a post should be set in the ground in an inverted position from the way it grew in the tree was not borne out by this investigation.

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The Women's Exchange

This is the farm women's *own* department—for them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

NOVEMBER 15.—What are the secrets of successful cake baking? Did you ever use a mechanical mixer? What kinds of pans do you use? What is the receipt for your favorite cake?

DECEMBER 1.—Each year new ideas are wanted for making Christmas gifts. Tell us in not more than 250 words how you will make some of this year's presents. What farm products do you find make acceptable gifts, and have you any special way of packing or preparing them?

DECEMBER 15.—Christmas candies, cakes and pies. All of us will be looking for something good and out of the ordinary for topping off the Christmas dinner or holiday festivities. Tell us how you make some of these things and any special way you have of serving them.

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

How We Use the Farm Automobile

Mrs. M. M. C., McKees Rocks, Pa.—At the present time, when the farmer is being urged to "do his bit" by raising more grain, etc., and farm help being so scarce an automobile is more of a necessity than a luxury. Every farmer who is able to afford one should have one, and few occupations need them more than they are needed on the farm. The farmer and family have access to fewer pleasures, amusements, etc., than others, but if they have an automobile they can have pleasures along with hard work and long hours. We have a 5-passenger car and we have used it to market our butter, butter milk, lard and garden produce all summer. We have always been careful in packing baskets, etc., in the car and place burlap or papers so that the car does not get scratched or scarred. We have found it very useful in making trips to town, Grange and postoffice, and can be home much quicker. The up-keep of a car depends on how the machine is run, the condition of the roads, and the size of the car. Our car is a 4-cylinder and since last May we have used one and one-half gallons of oil in running 1000 miles. The amount of gasoline depends on the amount of stops and starting you have to do, and the hills. Ours averages about one dollar per week. I would not want to return to the buggy, as there is more pleasure in car riding; one can go farther in the same length of time and can see much country that you would otherwise know nothing about.

Mrs. T. W. S., Canton, N. C.—In regard to farmers owning automobiles I wish to say, in my opinion, there is no one thing of more help to them where they have good roads than an auto. We have one and find that the up-keep is not much when the car is taken care of, and costs nothing when not in use. We can take as much produce—vegetables, apples or anything we have to sell—to town in our car as we could in two buggies and in less than half the time. There is no danger of the car getting scared and running off if left standing while we deliver the goods. Very often we need to make a trip to town when the horses are all busy plowing or at other work that must be done, then the auto comes in handy. But the greatest help is on Sunday when the horses have worked all week and must rest. May be it is three or four miles to church. We are all too tired to walk to Sunday School and preaching, but the car never gets tired, so all six of us, and sometimes a friend, get in and are at the church in a few minutes, rested and refreshed.

We don't want to go back to the buggy days, because after a few good rides in a car not many people can enjoy buggy riding. It makes us feel like five cents to go creeping along in a buggy and have our friends go sailing by in a car. No more of that for me as long as I can help it. I think every prosperous farmer should have an automobile.

H. C. McC., Ashville, N. Y.—A pleasure car certainly serves a variety of other purposes in connection with the average farm home; in fact, we use ours a great deal more for business than for pleasure. For instance, we go to market with it once or twice a week all summer; the trip would be particularly disagreeable with a horse, because we would have to start so early, and it would be impossible to get green stuff on the market in such a fresh condition. When in need of repairs for a machine the car can make the trip to town after them and have the machine working again within an hour or two, while with a horse it would be nearly a day's drive, which in planting or harvest time might mean the loss of a crop. It would be easy to enumerate a long list of uses for which the car is practically indispensable during the busy season when the horses are needed on the farm every day. If a man places any value whatever upon his time the practical use of the car can hardly be overestimated. We have had one two years and I believe it to be as profitable an investment as we have ever made in the line of machinery.

The automobile is the cheapest means of travel we have discovered, as well as the most satisfactory. No matter how warm the day, the car never sweats, never gets tired, and after going thirty or forty miles is as fresh as when first started. It would seem pretty slow now to have to take all day for a trip that we could easily make in a couple of hours after supper with the car.

As to up-keep, last season I drove a little over 2000 miles at a cost of less than $50 for gas, oil and all repairs. I would consider that a car, driven as the average farmer would drive it, from 2000 to 3000 miles per year, would cost about $200 per year for gas, oil, tires, repairs and depreciation.

Mrs. T. O. B., West Chester, Pa.—We have had our pleasure car nearly two years and hardly see how we did without it before. For going into town to get necessary supplies of various kinds it is a time and horse saver beyond our best hopes; as a means of enabling us to see what is going on around us it is worth a dozen horses and buggies, as it never gets tired and we have seen places which we never knew existed. We have driven it to Washington and New York, so you see we have more than visited our neighbors. That has all been for pleasure, but you recall the old saying, "All work and no play makes Jack a dull boy." We have often filled it with peaches, apples and potatoes and taken two loads to market and disposed of them in less than the time it formerly took us to handle half as much. Twenty-two baskets of peaches are the most we have had on at one time, and we do not have a twenty-two hundred dollar car. Last spring when potatoes were so high we hauled several $25 loads away when it would have been impossible for us to reach as high priced market with a horse. We do not want to go back to our former ways, even if gasoline is going up in price. When the car stops all feed costs stop and when we go we get back in a hurry, giving us plenty of extra time to earn more than enough to keep our car.

Miss I. E. B., Franklinville, N. Y.—In this, and other sections of the state where I have been visiting, I find an increasing tendency among the farmers to own automobiles. Although they are usually pleasure cars various uses are made of them. Many owners carry their milk every morning to the cheese factory in it. They seldom use any other conveyance when going to town, but carry veal calves, poultry, etc., in the family car. It depends on how good a farmer the owner of an automobile is whether he gets more out of his car than the up-keep charges. If he has bought a good car and keeps it in good repair and runs it carefully, not recklessly, and has much fruit, vegetables, poultry or other products from various side lines to dispose of, also if his business takes him away from the farm often, his up-keep charges will not be high considering the money made in time saved and produce sold that otherwise perhaps would waste or be sold at a loss. Much of these profits are lost to the farmer without a car, as usually he cannot possibly spare the

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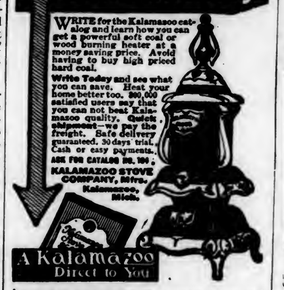

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..am or time from other work that it would take to draw any of this produce to a good market, and often he cannot spare team or time to take it to his home market even, so he has to wait until the best time to market it is past and so sells it at a loss.

Because of the longer distances one can go in a shorter time, the easier riding (for most people), the saving of the bother of getting the horses ready when one goes, and taking care of them when one returns, and the chance it gives to have a holiday or visit relatives for a day, which one could not do if he did not have a car, as one could not leave the chores or other work for as long a time as it would take to go with a carriage, and going on the train does not always save as much time (on account of changing cars, etc.). I am glad that the days of the buggy and other slow traveling ways are fast passing.

What Our Farm Women Ask and Answer

Miss I. E. B., New York, suggests that some one give cake and cookie receipts making use of honey.

Mrs. A. E. R., Delaware, would like to know how to make home-made noodles.

"If Mrs. D. C., New Jersey, will try ironing the moths out of her carpet I think she will succeed," Mrs. W. G. O., Pennsylvania, writes us. "I always dampen a cloth," she says, "spread it over where the moths seem to be and then iron it with a hot iron. This seems to kill all of them, as I am seldom bothered after one treatment."

In reply to Mrs. H. A. B., Maryland, asking how to make mince meat, Mrs. F. E. A., Missouri, tells us the following way to make it without beef:

"Take a medium sized hog's head and boil it until done (same as for souse or head cheese). One gallon of green or canned apples; one-half gallon dried apples; one tablespoonful of cinnamon; one tablespoonful of cloves; one tablespoonful of allspice; one pound of raisins. First cook the dried apples, then if you have green apples chop them as fine as possible. Cut your meat up fine. Then put all ingredients in a porcelain kettle, or a new tin pan, together and pour enough vinegar over it to give a sour taste. Then add sugar to suit your taste, and pour enough boiling water over it to keep from sticking, and boil till done. This can be canned and kept for a long time. In preparing your pies use plenty of butter and I am sure your household will relish them."

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8490.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. The waist is to be slipped on over the head.

8492.—Girls' dress. Cut in sizes 8, 10, 12 and 14 years. The dress is cut in one piece.

8488.—Misses' dress. Cut in sizes 16, 18 and 20 years. The dress has a three-gored skirt and a plain waist.

8497.—Girls' dress. Cut in sizes 6, 8, 10, 12 and 14 years. The dress is in one piece with a box-plait closing.

8503.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. The shoulder edges of front extend over front in yoke effect.

8518.—Ladies' dress. Cut in sizes 34 to 42 inches bust measure. The long sleeves may be made with or without the deep cuffs.

8489.—Girls' dress. Cut in sizes 4, 6, 8 and 10 years. The dress has a one-piece straight gathered skirt.

8504.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in two pieces.

8512.—Boys' suit. Cut in sizes 4, 6 and 8 years. The suit is very simple and easy to make.

8482.—Ladies' house dress. Cut in sizes 36 to 44 inches bust measure. The dress has a four-gored skirt.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA

Buckwheat and Oats Lower Bread Cost

Buckwheat and rolled oats have been used satisfactorily to partly replace wheat flour in bread in baking tests conducted at the Ohio Agricultural Experiment Station. Cost of bread may thus be reduced when wheat is abnormally high in price.

A small, compact loaf that compares favorably with whole wheat or graham bread and has the color and flavor of buckwheat may be made with buckwheat flour blended with an equal amount of wheat flour. When the quantity of buckwheat flour is one-third or less, of the amount of wheat flour, a larger loaf is obtainable at the expense of flavor.

The procedure practiced at the experiment station bakery is as follows: The buckwheat and wheat flours, blended half and half, are mixed fairly soft, with more salt than is used in white bread, and put immediately into a greased pan in which they are to be baked. When the dough becomes light, it is placed in a hot oven, which is allowed to cool gradually after the first ten minutes of baking.

A palatable, well-raised loaf can be made by blending rolled oats and wheat flour in the proportion of as much as half and half. The proportion should not fall below a third rolled oats and two-thirds wheat flour. Here are the directions given by the experiment station miller and baker for making such bread:

Mix the rolled oats with boiling water and allow to cool until lukewarm. Then add yeast mixture and treat this as a sponge. The rest of the process is the same as in any other bread making.

Rolled oats are now cheaper than wheat flour, and hence make an economical substitute. Buckwheat can be easily grown, milled and used for home consumption. Buckwheat grown this season may become a cheap wheat flour substitute for next winter.

What is Canned is Yours

There is no truth in a widely circulated statement that the Government expects to take food supplies from any family. Both the Food Administration and the Department of Agriculture at Washington, D. C., join in a statement to counteract what seems to be a deliberate propaganda to the effect that the Government intends to take from every family all canned goods put up in excess of 100 quarts.

This is only one of the variations of the rumor, which has been widely circulated. Another statement is that the Government has been urging the canning, drying and preserving of fruits and vegetables, so that they will be in a convenient form for the Government to handle and transport when it takes them away from the people. Further elaboration is that these goods are to be taken away from the American homes and shipped to England.

The authorities state emphatically that no such course has ever been contemplated by the Government. On the contrary, both the Department of Agriculture and the Food Administration are strongly urging housewives to can and preserve, especially at this time, all surplus fruits and vegetables in order that the households themselves may have a cheap and plentiful supply of food.

To Mothers of Little Children

A series of articles on the care and training of small boys and girls at home are being issued weekly by the United States Bureau of Education. They deal with such topics as understanding children, outdoor and indoor games and occupations, playmates, plays and toys, books, stories, pictures, music and pets. If you care to receive the articles as issued, send your name and address with request to be put on the mailing list for Mothers' Articles, to the Kindergarten Division of the United States Bureau of Education, Washington, D. C.

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This splendid 5-piece bed outfit sent you without any advance payment. Try it for 30 days free. If you decide to keep it, make first small payment in 60 days and take a year to pay. If not satisfactory, return it at our expense, in 30 days and you will not be out a cent. Order now—direct from this ad. Also get big free bargain catalog.

Complete Outfit—Full size bed, spring mattress, two pillows. Bed has heavy 1-16 inch continuous posts. Seven full inch upright ornamental fillers. Head is 54 in. and foot end is 38 in. from floor. Choice of White or Gold Porcelain, Vernis Martin or Ivory. Spring has fabric top fitted on heavy angle iron frame and is supported at ends by resilient steel helical coil springs. Mattress good grade, sanitary felt, layer of felt filled with steel. Covered with neat striped ticking. Weighs unpacked, about 60 lbs. Pillows filled with specially blended selected feathers and massage full 18x26 inches. Covered with durable striped ticking. Shipped from our Chicago Warehouse.

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The Light in the Clearing

A Tale of the North Country in the Time of Silas Wright

By IRVING BACHELLER

Author of Eben Holden, D'ri and I, Darrel of the Blessed Isles, Keeping Up With Lizzie, etc.

The Spirit of Man is the Candle of the Lord—Proverbs xx. 27

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FOREWORD

From the memoirs of one who knew Governor Wright and lived through many of the adventures herein described and whose life ended full of honors early in the present century. It is understood that he chose the name Barton to signalize his affection for a friend well known in the land of which he was writing.

THE AUTHOR.

PREFACE

The Light in the Clearing shone upon many things and mostly upon those which, above all others, have impassioned and perpetuated the Spirit of America and which, just now, seem to me to be worthy of attention. I believe that spirit to be the very candle of the Lord which, in this dark and windy night of time, has flickered so that the souls of the faithful have been afraid. But let us be of good cheer. It is shining brighter as I write and, under God, I believe it shall, by and by, be seen and loved of all men.

One self-contained, Homeric figure, of the remote country-side in which I was born, had the true Spirit of Democracy and shed its light abroad in the Senate of the United States and the Capitol at Albany. He carried the candle of the Lord. It led him to a height of self-forgetfulness achieved by only two others—Washington and Lincoln. Yet I have been surprised by the profound and general ignorance of this generation regarding the career of Silas Wright, of whom Whittier wrote these lines:

"Man of the millions thou art lost too soon!
Portents at which the bravest stand aghast
The birth throes of a future strange and vast
Alarm the land. Yet thou so wise and strong
Suddenly summoned to the burial bed,
Lapped in its slumbers deep and ever long,
Hear'st not the tumult surging over head.
Who now shall rally Freedom's scattering host?
Who wear the mantle of the leader lost?"

The distinguished Senator who served at his side for many years, Thomas H. Benton of Missouri, has this to say of Silas Wright in his *Thirty Years' View*:

"He refused cabinet appointments under his fast friend Van Buren and under Polk, whom he may be said to have elected. He refused a seat on the bench of the Supreme Court of the United States; he rejected instantly the nomination of 1844 for Vice-President; he refused to be put in nomination for the Presidency. He spent that time in declining office which others did in winning it. The offices he did accept, it might well be said, were thrust upon his. He was born great and above office and unwillingly descended to it."

So much by way of preparing the reader to meet the great commoner in these pages. One thing more is necessary to a proper understanding of the final scenes in the book—a part of his letter written to Judge Fine just before the Baltimore convention of 1844, to wit:

"I do not feel at liberty to omit any act which may protect me from being made the instrument, however honestly and innocently, of further distractions.

"Within a few days several too partial friends have suggested to me the idea that by possibility, in case the opposition to the nomination of Mr. Van Buren should be found irreconcilable, a compromise might be made by dropping him and using my name. I need not say to you that a consent on my part to any such proceeding would justly forfeit my standing with the democracy of our state and cause my faith and fidelity to my party to be suspected everywhere. * * * To consent to the use of my name as a candidate under any circumstances, would be in my view to invite you to compromise the expressed wishes and instructions of your constituents for my personal advancement. I can never consent to place myself in a position where the suspicion of acting from such a motive can justly attach to me. * * * *

"If it were proper I could tell you with the most perfect truth that I have never been vain enough to dream of the office of President in connection with my own name, and were not Mr. Van Buren the candidate of our State, I should find just as little difficulty as I do now, in telling you that I am not and can not under any circumstances be a candidate before your convention for that office."

According to his best biographer, Jabez Hammond, Mr. Wright still adhered to this high ground in spite of the fact that Mr. Van Buren withdrew and requested his faithful band to vote for the Senator.

There were those who accused Mr. Wright of being a spoilsman, the only warrant for which claim would seem to be his remark in a letter: "When our enemies accuse us of feeding our friends instead of them never let them lie in telling the story."

He was, in fact, a human being, through and through, but so upright that they used to say of him that he was "as honest as any man under heaven or in it."

For my knowledge of the color and spirit of the time I am indebted to a long course of reading in its books, newspapers and periodicals, notably *The North American Review, The United States Magazine and Democratic Review, The New York Mirror, The Knickerbocker, The St. Lawrence Republican,* Benton's *Thirty Years' View,* Bancroft's *Life of Martin Van Buren,* histories of Wright and his time by Hammond and Jenkins, and to many manuscript letters of the distinguished commoner in the New York Public Library and in the possession of Mr. Samuel Wright of Weybridge, Vermont.

To any who may think that they discover portraits in these pages I desire to say that all the characters—save only Silas Wright and President Van Buren and Barton Baynes—are purely imaginary. However, there were Grimshaws and Purvises and Binkses and Aunt Deels and Uncle Peabodys in almost every rustic neighborhood those days, and I regret to add that Roving Kate was on many roads. The case of Amos Grimshaw bears a striking resemblance to that of young Bickford, executed long ago in Malone, for the particulars of which case I am indebted to my friend Mr. H. L. Ives of Potsdam.

THE AUTHOR.

CHAPTER I.

THE MELON HARVEST.

Once upon a time I owned a watermelon. I say once because I never did it again. When I got through owning that melon I never wanted another. The time was 1831; I was a boy of seven and the melon was the first of all my harvests. Every night and morning I watered and felt and surveyed my watermelon. My pride grew with the melon and, by and by, my uncle tried to express the extent and nature of my riches by calling me a mellionaire.

I didn't know much about myself those days except the fact that my name was Bart Baynes and, further, that I was an orphan who owned a watermelon and a little spotted hen and lived on Rattleroad in a neighborhood called Licketysplit. I lived with my Aunt Deel and my Uncle Peabody Baynes on a farm. They were brother and sister—he about thirty-eight and she a little beyond the far-distant goal of forty.

My father and mother died in a scourge of diphtheria that swept the neighborhood when I was a boy of five. For a time my Aunt Deel seemed to blame me for my loss.

"No wonder they're dead," she used to say when out of patience with me and—well I suppose that I must have had an unusual talent for all the noisy arts of childhood when I broke the silence of that little home.

The word "dead" set the first milestone in the long stretch of my memory. That was because I tried so hard to comprehend it and further because it kept repeating its challenge to my imagination.

I often wondered just what had become of my father and mother and I remember that the day after I went to my aunt's home a great idea came to me. It came out of the old dinner-horn banging in the shed. I knew the power of its summons and I slyly captured the horn and marched around the house blowing it and hoping that it would bring my father up from the fields. I blew and blew and listened for that familiar halloo of his. When I paused for a drink of water at the well my aunt came and seized the horn and said it was no wonder they were dead. She knew nothing of the sublime bit of necromancy she had interrupted—poor soul!

I knew that she had spoken of my parents for I supposed that they were the only people in the world who were dead but I did not know what it meant to be dead. I often called to them as I had been wont to do, especially in the night, and shed many tears because they came no more to answer me. Aunt Deel did not often refer directly to my talents, but I saw, many times, that no-wonder-they-died look in her face.

Children are great rememberers. They

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are the recording angels—the keepers of the book of life. Man forgets—how easily!—and easiest of all, the solemn truth that children do *not* forget.

A few days after I arrived in the home of my aunt and uncle I slyly entered the parlor and climbed the what-not to examine some white flowers on its top shelf and tipped the whole thing over, scattering its burden of albums, wax flowers and sea shells on the floor. My aunt came running on her tiptoes and exclaimed: "Mercy! Come right out o' here this minute—you pest!"

I took some rather long steps going out which were due to the fact that Aunt Deel had hold of my hand. While I sat weeping she went back into the parlor and began to pick up things.

"My wreath! my wreath!" I heard her moaning.

How well I remember that little assemblage of flower ghosts in wax! They had no more right to associate with human beings than the ghosts of fable. Uncle Peabody used to call them the "Minervy flowers" because they were a present from his Aunt Minerva. When Aunt Deel returned to the kitchen where I sat—a sorrowing little refugee hunched up in a corner—she said: "I'll have to tell your Uncle Peabody—ayes!"

"Oh please don't tell my Uncle Peabody," I walled.

"Ayes! I'll have to tell him," she answered firmly.

For the first time I looked for him with dread at the window and when he came I hid in a closet and heard that solemn and penetrating note in her voice as she said:

"I guess you'll have to take that boy away—ayes!"

"What now?" he asked.

"My stars! he sneaked into the parlor and tipped over the what-not and smashed that beautiful wax wreath."

Her voice trembled.

"Not them Minervy flowers?" he asked in a tone of doleful incredulity.

"Ayes he did!"

"And tipped over the hull what-not?"

"Ayes!"

"Jerusalem four-corners!" he exclaimed. "I'll have to—"

He stopped as he was wont to do on the threshold of strong opinions and momentous resolutions.

The rest of the conversation was drowned in my own cries and Uncle Peabody came and lifted me tenderly and carried me up-stairs.

He sat down with me on his lap and hushed my cries. Then he said very gently:

"Now, Bub, you and me have got to be careful. What-nots and albums and wax flowers and hair-cloth sofys are the most dang'rous critters in St. Lawrence County. They're purty savage. Keep your eye peeled. You can't tell what minute they'll jump on ye. More boys have been dragged away and tore to pieces by 'em than by all the bears and panthers in the woods. When I was a boy I got a cut acrost my legs that made a scar ye can see now, and it was a hair-cloth sofy that done it. Keep out o' that old parlor. Ye might as well go into a cage o' wolves. How be I goin' to make ye remember it?"

"I don't know," I whimpered and began to cry out in fearful anticipation.

He set me in a chair, picked up one of his old carpet-slippers and began to thump the bed with it. He belabored the bed with tremendous vigor. Meanwhile he looked at me and exclaimed: "You dreadful child!"

I knew that my sins were responsible for this violence. It frightened me and my cries increased.

The door at the bottom of the stairs opened suddenly.

Aunt Deel called:

"Don't lose your temper, Peabody. I think you've gone fur 'nough—ayes!"

Uncle Peabody stopped and blew as if he were very tired and then I caught a look in his face that reassured me.

He called back to her: "I wouldn't 'a' cared so much if it hadn't 'a' been the what-not and them Minervy flowers. When a boy tips over a what-not he's goin' it purty strong."

"Well don't be too severe. You'd better come now and git me a pail o' water—ayes, I think ye had."

Uncle Peabody did a lot of sneezing and coughing with his big, red handkerchief over his face and I was not old enough then to understand it. He kissed me and took my little hand in his big hard one and led me down the stairs.

After that in private talks uncle and I always referred to our parlor as the wolf den and that night, after I had gone to bed, he lay down beside me and told the story of a boy who, having been left alone in his father's house one day, was suddenly set upon and roughly handled by a what-not, a shaggy old hair-cloth sofy and an album. The sofy had begun it by scratchin' his face and he had scratched back with a shingle nail. The album had watched its chance and, when he stood beneath it, had jumped off a shelf on to his head. Suddenly he heard a voice calling him:

"Little boy, come here," it said, and it was the voice of the what-not.

"Just step on this lower shelf," says the old what-not. "I want to show ye somethin'."

The what-not was all covered with shiny things and looked as innocent as a lamb.

He went over and stepped on the lower shelf and then the savage thing jumped right on top of him, very supple, and threw him on to the floor and held him there until his mother came.

I dreamed that night that a long-legged what-not with a wax wreath in its hands, chased me around the house and caught and bit me on the neck. I called for help and uncle came and found me on the floor and put me back in bed again.

For a long time I thought that the way a man punished a boy was by thumping his bed. I knew that women had a different and less satisfactory method, for I remembered that my mother had spanked me and Aunt Deel had a way of giving my hands and head a kind of watermelon thump with the middle finger of her right hand and with a curious look in her eyes. Uncle Peabody used to call it a "snaptious look." Almost always he whacked the bed with his slipper. There were exceptions, however, and, by and by, I came to know in each case the destination of the slipper, for if I had done anything which really afflicted my conscience that strip of leather seemed to know the truth, and found its way to my person.

My Uncle Peabody was a man of a thousand. I often saw him laughing and talking to himself and strange fancies came into my head about it.

"Who be you talkin' to?" I asked.

"Who be I talkin' to, Bub? Why I'm talkin' to my friends."

"Friends?" I said.

"The friends I orto have but ain't got. When I git lonesome I just make up a lot o' folks and some of 'em is good comp'ny."

He loved to have me with him, as he worked, and told me odd tales and seemed to enjoy my prattle. I often saw him stand with rough fingers stirring his beard, just beginning to show a sprinkle of white, while he looked down at me as if struck with wonder at something I had said.

"Come and give me a kiss, bub," he would say. As he knelt down, I would run to his arms and I wondered why he always blinked his gray eyes after he had kissed me.

He was a bachelor and for a singular reason. I have always laid it to the butternut trousers—the most sacred bit of apparel of which I have any knowledge.

"What have you got on them butternut trousers for?" I used to hear Aunt Deel say when he came down-stairs in his first best clothes to go to meeting or "attend" a sociable—those days people just went to meeting but they always "attended" sociables—"You're wearin' 'em threadbare, ayes! I suppose you've sot yer eyes on some one o' the girls. I can always tell—ayes I can! When you git your long legs in them butternut trousers I know you're warmin' up—ayes!"

I had begun to regard those light brown trousers with a feeling of awe, and used to put my hand upon them very softly when uncle had them on. They seemed to rank with the "sofys," albums and what-nots in their capacity for making trouble.

Uncle Peabody rarely made any answer, and for a time thereafter Aunt Deel acted as if she were about done with him. She would go around with a stern face as if unaware of his presence, and I had to keep out of her way. In fact I dreaded the butternut trousers almost as much as she did.

Once Uncle Peabody had put on the butternut trousers, against the usual protest, to go to meeting.

"Ayes! you've got 'em on ag'in," said Aunt Deel. I suppose your black trousers ain't good 'nough. That's 'cause you know Edna Perry is goin' to be there—ayes!"

Edna Perry was a widow of about his age who was visiting her sister in the neighborhood.

Aunt Deel wouldn't go to church with us, so we went off together and walked home with Mrs. Perry. As we passed our house I saw Aunt Deel looking out of the window and waved my hand to her.

When we got home at last we found my aunt sitting in her arm chair by the stove.

"You did it—didn't ye?—ayes," she demanded rather angrily as we came in.

"Done what?" asked Uncle Peabody.

"Shinin' up to that Perry woman—ain't ye?—ayes! I see you're bound to git married—ayes!"

I had no idea what it meant to get married but I made up my mind that it was something pretty low and bad. For the moment I blamed Uncle Peabody.

Aunt Deel's voice and manner seemed to indicate that she had borne with him to the limit of her patience.

"Delia," said my uncle, "I wouldn't be so—"

Again he checked himself for fear of going too far, I suppose.

"My heart! my heart!" Aunt Deel exclaimed and struggled to her feet sobbing, and Uncle Peabody helped her to the lounge. She was so ill the rest of the

(Continued on page 379)

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Feeding for Greater Milk Production

JOHN UNDERWOOD

In feeding for a large yield of milk the first requirement is the right kind of cow; second, feeding her to her full capacity with the proper kinds of feeds. With poor cows fed to their full capacity with the right kinds of feeds we cannot make much, if any, profit, nor do we secure the best returns by feeding good cows an unsuitable ration. But good cows fed all they will eat of a milk producing ration will return a satisfactory profit provided they are given the required care at the same time.

A variety of feed is desirable and we must consider its digestibility. Dairy cows should not be made to eat clover hay that has been cut after the blossoms have left it. In the list of economical feeding materials good corn silage can be classed first. Cows cannot consume and digest a sufficient amount of dry feed to work their milk producing power to its fullest capacity. Without succulent and easily digested food they do not thrive and produce milk to the limit of their capabilities. Our profits are derived from the amount of food consumed over and above the actual amount required for maintenance, as every reader of The Practical Farmer knows, so we should do the feeding with a liberal hand.

Results of Corn Silage and Cottonseed Meal

This bunch of steers gained 2.06 pounds daily for 140 days on the above ration at Penna. State College and sold on the Pittsburgh market last spring for $11.30 per hundred weight.

In my experience in feeding dairy cows the following named ration has given me better results than any other I have ever tried and I have tried several. Corn silage, 35 pounds; alfalfa hay, 10 pounds; ground corn, 5 pounds; wheat bran, 5 pounds; linseed meal, 1½ pounds. One pound of grain is fed for every 4 pounds of milk produced daily. This ration is properly balanced; that is, it contains the carbohydrates and protein in the proportion best suited to cows giving milk. This is my winter ration. In the absence of silage and alfalfa hay a simple ration productive of good results can be made up as follows. Clover hay fed at will, one-fourth oats, one-fourth wheat bran and one-half corn chop, the quantity of the three combined being regulated according to the capacity of the cow being fed. This ration may be changed somewhat and still possess practically the same feeding value. Slight changes in feed give a wider variety of rations, thus tempting the appetites of the cows and furnishing material that will help build up every tissue in the body. The condition of the foods consumed by the cows has much to do with the results obtained. Forage that is easily dissolved after being masticated yields up the most nourishment for the body and the most can be utilized from such in the production of milk. Silage, grass cut when green and any food which furnishes succulence comes under this classification. Grains which may be mingled with the roughage and yield their nutrient elements give the best returns, provided they are well balanced between the energizing, the building and producing kinds.

Surely feeding dairy cows to produce the best results is one of the fine arts. It is a subject worthy of the closest study in all of its phases. The dairyman who makes a study of his animals studies his feed and the different methods of feeding them and applies all that he can learn by his own experience and observation and all that he can accumulate from the observation and experience of others is deserving of the honorable title of an artist.

One question in connection with dairying on which there has long been a wide difference of opinion among dairymen and others interested in the subject of milk production, is the possibility of improving the quality of the milk by feeding. There are, however, no grounds for holding that good feeding increases the fat percentage. There is no evidence that will bear thorough investigation that the milk of a cow can ever be permanently improved in the percentage of fat by any method of feeding which has ever been devised. Notwithstanding all the advances which have been made in relation to the breeding of dairy cattle, the varieties of cattle with which most of us are acquainted still produce about the same per cent. of milk solids as they did 25 years ago, although, of course, in every breed there are individuals which do much better or worse than the average animal. For instance, there are Jerseys which produce milk with 8 per cent. of fat, while there are others which produce milk with less than 4 per cent. There are milking Shorthorns which exceed 5 per cent. of fat in the milk, and similarly, there are Shorthorns which fall below 3 per cent. It has been noticed that when a herd has been changed from one kind of food to another a larger quantity of curd has been produced for cheese making. But this may result from either of two causes: First, that the quantity of milk has been increased and with it the weight of solids; and second, the fact that the cows, from their former food, were not obtaining a sufficient quantity of feeding matter for their requirements. They may have been underfed. If an underfed cow is placed on an increased ration, that is, a ration containing a sufficient quantity of nutritious matter to provide for both her bodily wants and the manufacture of her milk, she will naturally produce a larger quantity of milk solids, but there is all the difference in the world between this action and the increased percentage of fat in the milk. A cow which yields 4 per cent. milk cannot by any process of feeding be transformed into a cow producing 4.5 per cent. milk.

In order to secure a heavy yield of milk and maintain the good health of the herd it is needless to state that pure water and salt are absolute necessities. By far the greater part of milk is made of water and if there is not an ample amount in the system there will be a decrease in the milk flow. None other but the cleanest and purest of water should be allowed, to which the cows can have free access at all times, where practicable. Salt, too, ought to be available whenever the animals want it, because it stimulates the appetite and assists digestion and assimilation, which increase the flow of the fluids of the body. I find it a good plan to keep rock salt under shelter where the cows can get at it at will, and then feed loose salt once a week in such quantities as the animals will eat. I do not practice mixing salt with the feed, for frequently the cows would get more salt than they need, and thus the milk flow would be reduced. Cows having salt kept before them at all times in separate compartments will not eat too much of it. An overfeed of salt to a cow that has been deprived of it for some time acts like poison and produces an irritation in the digestive organs, which results in scouring, a decrease in the yield of milk and a lowering of the health of the animal.

The dairy barn should be well lighted, well ventilated and kept clean all the time and the cows should have a good bed. Any kind of bright straw makes good bedding material. The dairy cow must be kept warm in cold weather if she is to do her best in the production of milk. If she is kept comfortable she will consume less feed and produce more milk than she otherwise would. Handling the animals in a quiet and gentle manner is an important factor in successful milk production.

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Beef Raisers' Problems

With the close of the pasture season, the breeder of beef animals is confronted with several problems.

It is important at this period to cull the breeding herd carefully to eliminate shy breeders and inferior milking cows. Cows that do not produce calves regularly increase the average cost of rearing calves to a weaning age in the herd, thus reducing the general profit.

Experiments at the Pennsylvania State College show that the cost of producing calves to weaning age averaged $43.75 a head when 100 per cent. calves were raised and $61.25 a head when only 60 per cent. calves were raised. This difference shows clearly the value of having regular breeders and of saving all the calves.

Cows that produce only a small quantity of milk should be eliminated. Other conditions being equal, the growth of the calf is directly proportional to the milking qualities of the cow. Cows sold at this season will command a good market, and the cost of keeping inferior animals through the winter may be avoided.

Among other conclusions drawn from experiments with beef breeding cattle at the Pennsylvania State College may be mentioned the following:

(1) Selection of the cows that were regular breeders and the elimination of non-breeders and those that aborted during the first four years of the investigation has resulted in the production of 100 per cent. calves during the last two years of investigation. Selection of cows that are good milkers and possess good beef form, size and constitutional vigor, was found necessary for the production of calves that would make substantial gains in weight and development.

(2) Breeding and growing stock were maintained in excellent condition throughout the winter in open quarters which provided dry shelter and an exercise yard. This practice proved a safeguard against tuberculosis.

(3) The use of breeding bulls of merit increased the average merit of the females of the herd during the experiment.

(4) Heifers dropping calves at twenty-six or twenty-seven months of age are stunted in development, especially those that are heavy milkers, and fail to develop to the extent that heifers dropping their calves at thirty months do. Moreover if the time intervening between calving is extended to thirteen or fourteen months after the first calf is born, heifers dropping calves at twenty-six or twenty-seven months of age largely recover their stunted growth and development.

HOGS FOLLOWING STEERS.

For the greatest profit, steers which are fed grain should be followed by hogs in the feeding quarters. Experiments show that where corn silage forms a large part of the ration one hog with an initial weight of 100 pounds is sufficient for two steers.

The hogs in the steer lot should be fed some grain in addition, particularly one furnishing protein. Tankage, at the rate of one-half pound per 100 pounds live weight daily, oil-meal or skim milk, are the most common feeds used for this purpose. It is also well to feed some corn in addition. The amount will depend largely upon the condition of the shoats. If too much corn is fed they will not utilize all the waste material from the steers. When a limited grain ration is fed to steers the shoats are expected to get at least one-half their feed from following the steers.

The gain from hogs following steers is always very satisfactory. The amount of pork produced in the feed lot often tides the feeder over, if there is a break in the cattle market which forces him to sell his steers at a loss. Experiments at Pennsylvania State College show that hogs following steers will gain from 50 to 75 pounds during a feeding period of 140 days, with no extra feed. Greater gains are made when additional feeds are given. It is desirable to have hogs gain at the rate of at least one pound daily.

WINTERING BEEF STEERS IN NEW JERSEY.

While New Jersey is not recognized as a beef producing state, the proposition of marketing a part of the farm roughage through the feeding of a few beef steers is being considered by some farmers.

Buying a few steers, or possibly a carload of thin feeders, carrying them through the winter and turning them on to the market does not mean that they will be offered as finished corn-fed beef. They will not class as prime bullocks, but where a farmer has plenty of silage and legume hay to feed as roughage and wishes to retain the manure as fertilizer, all at a minimum of labor, this may be a profitable practice. However, it will be extremely difficult to show a profit if any considerable amount of corn or other grain is used in the making of beef. A 1000-pound steer will consume, on the average, 50 to 60 pounds of corn silage, 5 to 8 pounds of alfalfa hay and 3 to 4 pounds of cotton seed meal per day. If of the right constitution and capacity with the true beef type and temperament, he should gain an average of 2.5 pounds per day on this ration. Plenty of salt, fresh water and a well protected shed are all the accommodations necessary.

The department of animal husbandry at the New Jersey Agricultural Experiment Station will, upon request, make recommendations for rations for the various stages of the feeding period and also for fattening animals of different ages.

Try This in Your Barn

One of the features of the National Dairy Show at Columbus, Ohio, was a herd of pure-bred Holsteins from a stock farm at Oconomowoc, Wisconsin. A large placard conspicuously posted in the center of the display of fine cattle attracted universal attention. It read:

"No swearing allowed.
These are contented cows."

"It is a stringent rule on all our stock farms," said M. J. Norton, the manager, "that harsh language or unkindness toward the cattle is absolutely forbidden. Strange as it may seem, a cow is as responsive to pleasant treatment as a human being. If you are mean to a cow she is pretty apt to return the meanness. Therefore we preach bovine optimism. We keep our cows contented and we find they give more and better milk."

Why Milk Costs More

What does it cost to raise a dairy heifer to one year and to two years old? This question is answered in the September Monthly Bulletin of the Ohio Agricultural Experiment Station, in which the claim is made that dairymen usually underestimate the value of heifers.

Feed alone at medium prices costs about $33 for the first year and $28 for the second. Cost accounts of raising calves by the Ohio, Massachusetts and Connecticut Experiment Stations and the U. S. Department of Agriculture were used as the basis for these figures.

Labor, interest and miscellaneous overhead expenses must be added to this feed cost. The 2-year-old heifer must be credited with a calf and the manure produced during two years. The net cost at medium prices is then given in the bulletin at $44.77 for the first year and $29.08 for the second. At present high prices the net cost for two years rises above $100.

Economy in dairying and care in breeding only good stock are therefore necessary. The heifer from a low-producing dam and an inferior sire will not return the cost of her production and maintenance.

While we are conserving let's save the wool and mutton by tying a can to the sheep-killing dog.

It pays to be suspicious whenever you find a sick hog in the herd. Pork prices are too high to take chances with hog cholera.

News From the Breed Associations

Wandermeere Belle Hengerveld 193784, a Michigan Holstein, recently gave 570 lbs. of milk in a seven day test which produced 42.61 lbs. of butter, thus becoming the new world's junior 4-year-old champion.

The directors of the American Polled Hereford Breeders' Association have completed plans for a great congress of breeders to be held at Des Moines, Iowa, from February 3-10, 1918. In connection with the meeting, which will attract breeders from all sections of the United States, a series of five auction sales of Polled Hereford cattle will be held. The event will be known as "Polled Hereford Week."

The report of Mr. B. O. Gammon, secretary of the American Polled Hereford Breeders' Association, for the business year just closed, shows by far the most prosperous year of that organization. More than 100 new breeders were established each month during the year.

Up to August 1st this year the National Duroc-Jersey Record Association had isued 31,883 pedigrees, or nearly as many as during all of 1915. The resecent establishment of a field secretary to further the interests of this popular breed of hogs has done much to foster the community breeding idea so as to obtain the greatest results from pure-bred herds. The association now has over 6500 members.

The annual meeting of the stockholders of the Percheron Society of America, which has now approximately 9000 members, will be held in the Congress Hotel, Chicago, December 3rd. This is the day previous to the Percheron judging at the International Livestock Exposition, which, from all indications, promises to be extremely strong this year.

From the American Jersey Cattle Club we learn that in May, three years ago, a list of Jersey cows on yearly test that were producing over 50 pounds of butter-fat per month was published for the purpose of keeping breeders informed as to their month by month production There were 132 cows in the first list. Three years later, May, 1917, saw 487 cows in the 50-pound list. This means that 487 Jersey cows on test were producing at the rate of more than 50 pounds of butter-fat or 60 pounds of butter in that month. At present 500 Jersey cows on test are producing at the rate of 500 pounds of butter-fat, or 750 pounds of butter, per year. High cost of feeds has not prevented Jersey breeders from testing. In June, 1917, 3727 cows owned by 458 breeders in 46 states were being officially tested and were making records.

From the Ayrshire Breeders' Association we learn that they have recently been interested in the shipment of two young Ayrshire bulls to Japan. They were sent from the state of Washington and are said to be proving a big factor in Ayrshire breeding in the Orient.

The Light in the Clearing

(Continued from page 376)

day that my uncle had to go for the doctor while I bathed her forehead with cold water.

Poor Uncle Peabody! Every step toward matrimony required such an outlay of emotion and such a sacrifice of comfort that I presume it seemed to be hardly worth while.

Yet I must be careful not to give the reader a false impression of my Aunt Deel. She was a thin, pale woman, rather tall, with brown hair and blue eyes and a tongue—well, her tongue has spoken for itself. I suppose that she will seem inhumanly selfish with this jealousy of her brother.

"I promised ma that I would look after you and I'm a-goin' to do it—ayes!" I used to hear her say to my uncle.

There were not many married men who were so thoroughly looked after. This was due in part to her high opinion of the Baynes family, and to a general distrust of women. In her view they were a designing lot. It was probably true that Mrs. Perry was fond of show and would have been glad to join the Baynes family, but those items should not have been set down against her. There was Aunt Deel's mistake. She couldn't allow any humanity in other women.

She toiled incessantly. She washed and scrubbed and polished and dusted and sewed and knit from morning until night. She lived in mortal fear that company would come and find her unprepared—Alma Jones or Jabez Lincoln and his wife, or Ben and Mary Humphries, or "Mr. and Mrs. Horace Dunkelberg." These were the people of whom she talked when the neighbors came in and when she was not talking of the Bayneses. I observed that she always said "Mr. and Mrs. Horace Dunkelberg." They were the conversational ornaments of our home. "As Mrs. Horace Dunkelberg says," or, "as I said to Mr. Horace Dunkelberg," were phrases calculated to establish our social standing. I supposed that the world was peopled by Joneses, Lincolns, Humphries and Dunkelbergs, but mostly by Dunkelbergs. These latter were very rich people who lived in Canton village.

I know, now, how dearly Aunt Deel loved her brother and me. I must have been a great trial to that woman of forty unused to the pranks of children and the tender offices of a mother. Naturally I turned from her to my Uncle Peabody as a refuge and a help in time of trouble with increasing fondness. He had no knitting or sewing to do and when Uncle Peabody sat in the house he gave all his time to me and we weathered many a storm together as we sat silently in his favorite corner, of an evening, where I always went to sleep in his arms.

He and I slept in the little room upstairs, "under the shingles"—as uncle used to say. I in a small bed and he in the big one which had been the receiver of so much violence. So I gave her only a qualified affection until I could see beneath the words and the face and the correcting hand of my Aunt Deel.

Uncle made up the beds in our room. Often his own bed would go unmade. My aunt would upbraid him for laziness, whereupon he would say that when he got up he liked the feel of that bed so much that he wanted to begin next night right where he had left off.

(Continued next issue.)

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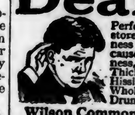

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CHAS. S. YOUNG. Geneva, N. Y.

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The Practical Farmer

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Some Factors in Efficient Farm Management

By A. E. GRANTHAM

FROM a business standpoint farming is rather complex. The numerous enterprises that go to make up the business of the farm have much the same relation to each other as the different departments in a department store. The fact that these enterprises overlap more or less and are somewhat dependent upon each other in a number of ways makes farming more complicated than most forms of business. For example, on the farm there is a range of enterprises from the production of the raw material, as a crop of corn, to the finished product, as eggs, milk or butter. The transformation of the crude and less valuable product to the concentrated, high-priced commodity is a manufacturing process, which is accomplished by the productions of certain by-products which must be utilized. This calls for a rather complex organization of the enterprises.

If the farm business is to be carried on successfully these different enterprises must fit together well, and provide for using all the resources of the farm without waste. The land operated should be extensive enough to provide the maximum number of days of productive labor throughout the year. No more equipment should be provided than the different enterprises can fully utilize. The enterprises should be so planned as to provide labor at every period of the year. The great problem is to utilize land, labor and equipment to the fullest extent. To organize the farm so that these requirements may be met and to conduct the business successfully demands a grade of intelligence not second to that required by any other business or profession.

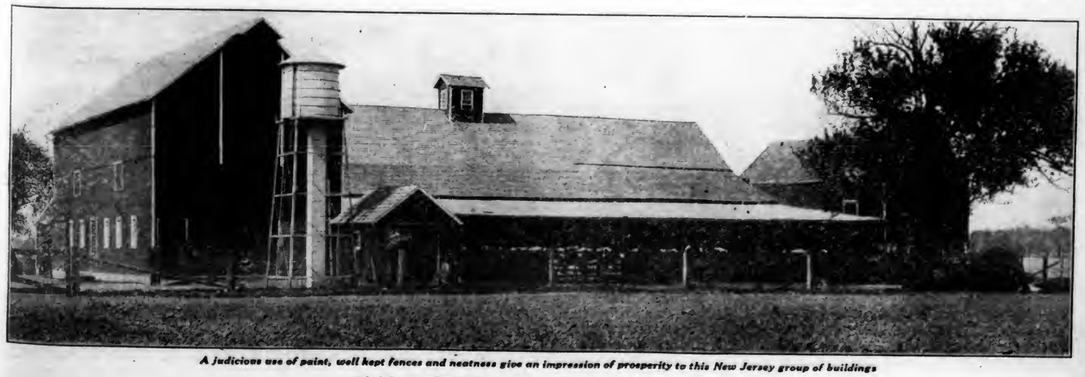
In other lines of business, efficiency experts make a study of their organization and operation for the purpose of eliminating expense and putting out the product at the least possible cost. Before the farmer is able to conduct his plant, where the departments are so closely inter-related and where success depends upon so many conditions, it will be necessary to carefully analyze the business and so co-ordinate its parts as to have all factors work together with the greatest possible efficiency.

If you go into any section of the country you will find farms side by side, one of which is profitable and the other barely paying expenses. A comparison of farms like these naturally creates the question as to the cause of the difference. A close analysis of the organization of the two farms will probably reveal the fact that certain factors of management are emphasized in the one case and in the other neglected. Before a farm can be called profitable it must first pay for the expense of running it and a fair rate of interest on the money invested, and in addition to this there should be some money left for the farmer for his labor. The amount that is left is called the labor income. A farm, therefore, that has a labor income is called a profitable farm, and the larger the labor income the more profitable the farm. If, on the other hand, there is no labor income the farm is considered unprofitable. This way of measuring farm profits by the labor income is considered the only practical method for making comparisons as to the profitableness of one farm with another.

Our Thanksgiving Day King
May the American eagle and turkey always reign supreme.

During the past five years farm surveys have been conducted in most of the states of the Union. These have included several dozen farms in a given locality where a record of the year's business for each farm is carefully taken. The receipts and expenses of each farm are carefully analyzed and the labor income calculated. With this analysis it has been found that there are three or four factors which seem to have a direct bearing upon the size of the labor income. The first of these is size of the business. For the same type of farming in a given section the larger farms have been found to have the larger income. The size of the business may be measured in several ways. First by the number of acres in crops, the number of animal units kept on the farm and the total capitalization of the farmer. In some cases the number of acres is perhaps a better method of measuring the size of the business than is the capital. Much depends on the type of farming and the intensity of operation. It has long been thought by the city dweller and the man who knows little of farming, that the small farm well tilled is more profitable than the large farm. A close study of the enterprises involved in farming will show that the smaller farms cannot compete with the larger ones in producing a good-sized labor income. For example, it takes about as much equipment on a farm of 80 acres as will handle a farm of 120 to 150 acres. In other words, the equipment on a small farm is not so fully utilized during the season as the equipment on the larger farm. The same thing may be said of the number of days of profitable labor furnished on the small farm. More crop acres per horse may be cultivated on the larger farm, thus reducing the overhead expenses where the larger acreage is handled.

Another method of measuring the size of the farm business is by the amount of live stock on the farm. In order to measure the amount of live stock on one



A judicious use of paint, well kept fences and neatness give an impression of prosperity to this New Jersey group of buildings

farm and compare it with the live stock on another farm it is necessary to have some unit of measuring stock. One farm may have 10 cows, another 10 hogs, another farm may have 10 chickens. It could not be said that any of these farms were equally stocked, because the 10 chickens were not equal in any way to 10 cows. Investigation has determined that one cow or one steer, two young cattle, two young colts, seven sheep, five hogs and 100 chickens require the same amount of feed. The cow, therefore, is graded an animal unit. Five hogs are an animal unit and 100 chickens are an animal unit. In this way all the live stock on the farm can be measured by the animal unit and compared with the live stock on another farm.

In these surveys the profitable farms have been found to have a larger number of animal units than the farms with a small labor income. One of the points, then, in securing a higher labor income is to increase the size of the business. This may be done, in some instances, by farming more land or increasing the number of live stock on the farm. Another method of efficiency of the farm is the return secured from the feeding of live stock. Some farmers are able to secure a higher average annual return for each animal unit, and in general these men are making larger labor incomes.

Another way of measuring the profitableness of the business would be to estimate the returns for each 100 worth of feed used. Some feeders are able to receive only $90 for $100 worth of feed used, which indicaets a loss of $10. Others will secure from $130 to $150 for each $100 worth of feed used. The difference here is explained by the fact that the better returns are secured by keeping a better grade of stock and feeding a better balanced ration. The yield per acre or the various crops and the return per animal unit and the profits per $100 worth of feed used designates the grade of the farming business. These surveys have shown that the farmers with a good grade of business are generally making a higher labor income than those whose return per animal unit and per crop acre is below the average .

Diversity is another factor which determines the profitableness of farming. Diversity refers to the number of enterprises that are necessary in order to secure a good labor income. This is perfectly clear from the fact that it is necessary to have a number of crops plus some live stock in order to provide profitable labor throughout the year. Those men who are able to plan their work so as to provide some labor the year round receive the larger labor income. The farmers with the best labor incomes did more work in the same length of time than did the other farmers. They probably did not work harder or put in longer hours than the average men, but the work was better planned.

The reason why some farmers make their farms pay better than others is that they have a somewhat larger business. In some localities this will mean more acres in crops. In another, more animal units, especially cattle or hogs, than the average farm, and that their business was of the better grade in every respect. Those with the larger labor income secure better returns from their live stock, better returns from the feed used, somewhat better yields and greater labor efficiency. The capital that a man has may limit the size of his business that he can do, but in most cases it does not limit the quality. The man of limited means should first improve the quality of his business. He should study his fields, study his stock, plan his work and then increase the size as fast as his means will permit. It has been shown that it costs as much to keep poor stock as it does to keep good stock. There are better returns where a good combination of feed is used. Planning the work well does not mean more work on the farm, but it does mean that more work is accomplished with the same energy. Every farmer should carefully analyze his business so as to note what factor is deficient or less effective in his organization. A good organization is as necessary in the production of plants and animals as in any other industry.

The Farmer a Student

W. H. ROTHENBERGER

ABOVE all professions stands the farmer in the number of enterprises which he must oversee. He must be thoroughly familiar with animal husbandry, which means the feeding, breeding and general care of all live stock kept. He needs to know the fundamental principles of the subjects of farm crops, soils, agricultural chemistry, horticulture, insect pests, plant diseases, rural economy, farm management, bacteriology, meteorology and many others. The average farmer may not know them by these names, but he daily applies the principles coming under these heads.

The successful farmer is of necessity a clear thinker and a good student. His problems are not merely to produce large crops and many animal products, but it must be done economically and then marketed to advantage. Agricultural information is to be had so easily and cheaply that no farmer can afford to be without it.

There are several sources of agricultural information. First, I will mention farm papers. There is such a large list to select from that the wants of everyone can be satisfied. About four or five carefully chosen and faithfully read farm papers will satisfy most farmers. It will be best to have several that deal with the whole subject of farming and a few that are specialized, as dairying, poultry, etc. Get papers that give specific information and not the kind that beat around the bush with "stuff" that no one knows how to apply.

The daily trip to school at Shiloh, N. J., and home again, in one of these busses which collects in an hour all the children on a 15 mile drive is a pleasure not to be denied on account of a little rain or snow

Second, there are Government and experiment station bulletins on almost any subject, and these may be had for the asking. By addressing the Secretary of Agriculture, Washington, D C., any one may secure a list of bulletins available for free distribution, and he can then ask for the ones in which he is interested. By addressing the director of one's state experiment station, their bulletins may be secured by the same procedure. As a third source there are books. The Year Book, issued by the Department of Agriculture at Washington, and obtainable free of charge from your Representative in Congress, is well worth having. Besides containing many valuable articles, it gives many interesting statistics. A few well chosen books are better than a great number which soon become little more than ornaments. A book which I could not do without is "Woll's Handbook for Farmers and Dairymen." It contains so many rules, tables and "short cut" information upon almost any agricultural subject that I use it more than any other agricultural book. Warren's "Farm Management" should be in every farmer's possession, for it contains the latest information on the business principles in farming. It also contains the results of many original investigations as to farm organization, besides instructions for keeping a complete set of farm accounts.

Correspondence courses may be considered a fourth source. Nearly every state college has correspondence or reading courses which are free to all farmers of the state. This is a convenient, cheap and effective way of securing useful information in almost any branch of agriculture. The director of your agricultural college will be glad to answer any questions concerning these courses. Fifth, may be mentioned county agents and farm advisers. Some counties are fortunate enough to have county agents who will answer by letter or come personally and help you with any problem which you may have. Pennsylvania also has a board of farm advisers with headquarters at Harrisburg, Department of Agriculture, who serve the same purpose.

In the sixth place there are farmers' organizations, as farmers' clubs, Granges, rural improvement associations and all other organizations which bring farmers together. These should be attended and supported, for they are a great means of spreading agricultural knowledge and of uplifting a community.

Every progressive farmer needs a roll-top desk—a place to keep his writing material, letters, account book, catalogues and all small articles which he wants to keep, so that they can be found when wanted. He also needs a desk telephone as well as the business man, for it is tiresome to stand up to the old kind with one's face to the wall. The bookcase should be near the desk, for the farmer has no time to waste, because he usually has only a short time each evening to do his reading and writing.

In order that information may be secured when desired, it must be systematically arranged so it can be easily found. I have, therefore, filed my bulletins away in pasteboard boxes, holding about twenty each, and have them all numbered and card indexed by subjects. In this way I can readily find any I want.

By taking advantage of the agricultural literature which can be had by the investment in a postal card and by having a few well chosen papers and books and reading them, there is no reason why the farmer should not be as broad and business-like as men of any other profession.

Pennsylvania.

Waste Places on the Farm

R. B. RUSHING

THERE is enjoyment in working a waste place into a thing of beauty and profit. Then, still more, there is enjoyment in doing something that will be a pleasure to others. A man in my neighborhood only a few years ago had a swamp near his house, and with just a little work in draining and cleaning it he has made it into one of the best garden spots I have ever seen. It is simply astonishing the amount of garden stuff that is now raised on that spot, which only a few years ago was a disease breeding place.

Of course, it is not consistent to think that all waste places can be cleaned up at once; but the sooner it is commenced, the sooner will the job be over. Neither can we expect to get the largest profit out of the waste places the first year. It will, of course, depend somewhat on the kind of waste it is. A scraggy apple tree is in a sense a waste place, for what profit are those dead limbs and suckers? How much better a well trimmed tree looks. The fruit is much better, therefore more profitable. Who likes a small, hard, wormy apple, when with a little cutting away of the useless wood and proper care during the growing season large fruit may be had?

A clean yard will create a disgust for a dirty or littered-up one. A well kept lawn or garden shows energy and thrift, while weeds or anything that in any way disfigures garden, field or even the small corner, shows a lack of thought and a good deal of shiftlessness. How slovenly it looks to see bushes on the side of the road, or here and there in a field, always plowing around them. There is no profit in them.

Of course, the idle months of the early fall are an ideal time to look after such things, and I am sure that the time spent in cleaning up such places will be time spent very profitably. People from off are always passing the farm in their cars, and the appearance to those people is much better when things are up in nice shape. First thing you know the farm is sold—to yourself, perhaps.

Illinois.

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EDWARD T. WALKER, Managing Editor
THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS
W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE
F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES
J. C. Billingslea, 119-123 W. Madison St., Chicago.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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NOVEMBER 15, 1917

Let Us Give Thanks!

WHAT are you going to give thanks for on this Thanksgiving Day?

Here are a few of the many things *we* are thankful for:

We're thankful that, since the cause and the provocation are such as they are, our National backbone and honor are still sturdy enough to have brought us into the war on the side of the right—and that we are well on our way toward "making the world safe for democracy."

We're thankful that we are not Belgian or French farmers, and that we've decided to stop the "Hun" before he comes across the water to devastate *our* farms as he has theirs.

We're thankful that we are Americans—not Kaiser-ridden Germans, and that if there ever was any danger of our being Kaiserized, that danger is past.

We are thankful to, and for, our English, French, Belgian, Italian and Russian brothers, who have these three years and more borne the burden of war, keeping the Hun from our shores and mourning from our doors.

We are thankful that our harvests have been rich and plenteous, so that not alone may we be fed but that we may feed our Allies and give them strength in their time of need.

We are thankful to, and for, the young men of our land, who have cheerfully and willingly responded to our country's call to service and are sacrificing so much for her—and us. God strengthen and keep them.

If you are thankful for these things, too—and want to show it substantially—we hope you will read the following editorial and accept "your opportunity!"

A Wonderful Opportunity for YOU

WE hear every day and everywhere of the horrors of the war, of its destructiveness and the evils it is bringing into the world, until sometimes it is hard to see anything bright in the present or aught but gloom in the immediate future. But the war, like everything else, has its lights as well as its shadows—astonishing as that statement may seem—and one of these lights—perhaps the brightest spot in the present and a light for the future as well—is brought forcibly to our attention this week in the campaign of the National War-Work Council of the Young Men's Christian Association to raise a fund of $35,000,000 in the nine days from November 11th to 19th.

We have been, and are, raising money continually for the purposes of carrying on the war—for the purchase of munitions and for the clothing, feeding, transportation—in short every expense—of our Army and Navy in the field. In our contributions to the Red Cross we have provided for the care of our boys in sickness and when wounded, and through this same organization have sent them some little comforts and luxuries to help them in the drudgery of camp life. But so far we have made no investment for the protection of the bodies and morals of our boys from the evil influences which are bound to find their way into the camp and field life of an army.

We are putting into the field the flower of the young manhood of this country; some of our boys will never come back to us, some will come back maimed and crippled—but many, the majority, will come back unharmed by the enemy's bullets to take their places again in the social and business life of the nation. The character of the life of this country during the next twenty years will depend to a large extent on the condition, both morally and physically, in which these young men come back to us. If we want them to come back strong in body, sound in character—better men than when they went out from our homes—it is time for us to invest our money and our efforts to give them the moral protection and bodily comforts in camp and trench to which their sacrifice in our behalf entitles them. The program of the Y. M. C. A. provides the effective means for this investment. In placing our money in this organization, we are assured of no waste in process of experimentation, as the association has already shown its value and gained its experience among our own boys during their stay on the Mexican border, and today is maintaining a work in the concentration camps throughout the country.

Before next July the American Army and Navy will in all probability include 2,500,000 men. The Y. M. C. A. program contemplates an investment of $10 per man only in this welfare work to the end of June, 1918. Thus $25,000,000 out of the $35,000,000 asked for will be expended right amongst our own boys in providing bodily comforts in a life beset with discomforts, entertainment for their leisure moments, steady support and strengthening of their moral backbone, and a non-sectarian religious help which is the keynote of the Y. M. C. A. work. Most of you who have boys at the front, or in camp, already know from their letters, written on the Y. M. C. A. stationery from the Y. M. C. A. "huts," of the brightness this work brings into their lives—the entertainment which keeps them out of mischief—and we have no doubt that you will be glad to make great sacrifices to strengthen the hand which helps your boy. Those of us whose boys are still safe at home will be glad to spend our money to help care for our neighbors' boys that they may come home stronger and better men—the kind every one of our communities need. So much for the selfish side of it!

The other $10,000,000 is to be expended in the furtherance of the Y. M. C. A. work among the 16,000,000 men of the armies and navies in the thick of the struggle "over there," and the 6,000,000 prisoners of war of all nations—a work which began early in the war, and which has not only accomplished untold good in religious, moral, educational and humanitarian ways among the men who have borne the burden of the day and may fairly be said to have been through hell, but has done more than any other single agency to win the respect and affection of our brothers-at-arms—and even of some of our enemies—for our own dear country.

Think of it—a total of 24,000,000 men in arms, whereas in no previous war have more than 2,000,000 been opposed to each other! Never has there been such a need—never such an opportunity—for moral, humanitarian and religious work. No one questions the immense amount of good the Young Men's Christian Association has done throughout our country these many years—in days when it has had to draw its attendance against a host of counter-attractions and make its impression upon minds filled with the frivolities and diversions of our everyday social life. But here are 24,000,000 men, each with his hours for rest and relaxation after his turn in the field, cooped up in camps, crying out for a little comfort and entertainment—and each brought face to face at every turn with the most serious things in life—even with death—and with minds open for the message this Christian Association has for them! Why, the work is cut out—the greatest opportunity the world has ever seen—and the men of the Y. M. C. A. are ready to do it; all they need is the money—our money—to take advantage of the situation to the utmost.

Will we give this work the support it needs? Will you, The Practical Farmer readers, join us in helping? You will receive this paper while the $35,000,000 campaign is at its height—what will you do about it? We stand ready to serve you and this work in any way we can. If you can spare $25, or $10, or $5, or $1—or 50 cents—for this wonderful work we will be glad to act as your agent in placing it in the proper hands and will send you the committee's official receipt for whatever you may send. Address the Editor—and whatever you do, do it quickly!

Will It Pay to Raise Hogs?

SINCE November 1st all packing and slaughter houses in the United States doing an annual business of more than $100,000 have been under the control of the U. S. Food Administration. Chicago has naturally become the meat headquarters and Mr. J. P. Cotton, of New York City, has been appointed head of this division. Producers and consumers are represented on a special advisory board. While it is not the intention of the Food Administration to fix the prices at which live stock shall be sold, they will be able, through their control over the buying of the Allies, our Army and Navy, the Red Cross, the Belgian Relief and the neutrals, to practically control the market. In view of this, Mr. Cotton has just issued a statement to the effect that in so far as he can prevent it, the price for the average of the packers' droves on the Chicago market will not go below a minimum of about $15.50, at least until farther notice.

Of course, the selling price of corn has always been the leading factor in the production cost of pork, and the two have had a definite relation. Over a series of years this is stated to have been about 12 to 1 or a little less. This means that each hundred pounds of pork sold for twelve times as much as the average bushel of corn fed into the hogs. When it was lower than this the stock of hogs in the country decreased and when it was higher the number of hogs increased. Realizing that while it is patriotic now to "produce fat to make fuel for the fighters," some understanding of future conditions must be had if farmers are to materially increase the supply of hogs. The advisory board, therefore, thinks that a ration of 13 to 1 for the hogs farrowed next spring will bring the supply back to normal under present conditions. The Food Administration wants it especially understood, however, that this is not a guarantee backed by money, nor a promise of the packers. It is merely a statement of the intention and policy of the Food Administration in their effort to do justice to the farmer, and that they will use their influence to stabilize the market at that time so that each hundred pounds of hog ready for the market will bring thirteen times the average cost of each bushel of corn fed into it.

It Pays to Study Fertilization

THERE is an old saying that we cannot eat the bun and have our penny also, but at the same time many of us would like to do it and are carefully figuring how we can come nearest to it. We are beginning to see already in this country the effects of high grain prices in a reduction of the amount of live stock. Before we take too big a leap, because it is not as easy to jump back into stock raising as it is to jump out when prices are high, we might well look for a minute to England and Germany before the war. As England depended on her mastery of the seas to keep her fed, only twenty acres out of every hundred acres of arable land were devoted to cereal crops and nearly seventy acres produced grass. On the other hand, Germany, because of a great demand for food, planted forty-six acres out of every hundred with cereals, and only devoted thirty-two acres to grass and forage crops. On the face of it, this would indicate that England produced more live stock, but as a matter of fact the figures show she kept only 3.97 tons for each hundred acres, compared with 4.27 tons in Germany, who at the same time produced more milk and more grain. The secret of this seemingly impossible feat is given as being an intelligent and generous use of fertilizers. Figures are quoted showing that in 1910 nearly four times as much commercial fertilizer was used as in 1890.

We have gone through the period when commercial fertilizers as such in this country were considered as something beyond the understanding and use of all classes of farmers and have come to the time when their intelligent application is essential for success on the majority of Eastern farms. Special study this year, when prices of everything are high, will be well repaid at harvest time. More than ever before, also, it will behoove all of us to properly care for the manure produced on the farm, because other nations than ours are depending on the fertility of our farms to tide them over a period of hunger.

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Orchard Practices that Have Succeeded

Good Orchard Care Pays Dividends

J. T. BARTLETT.

Many times we farmers are tempted to disregard the pruning, spraying and fertilizing routine prescribed by good orchard management. We may be short for time or money. We may even doubt the need of going to such lengths of care and not prune regularly. We spray perhaps but once, and then hastily, when two or three or perhaps five sprays are recommended. We have no hard and fast rule about fertilization. Grass which should be left for a mulch beneath the trees we cart to the barn for our cows, and the trees get no manure in return.

Thus orchard care on thousands of farms where apples are a side line is careless and slovenly, and the inevitable consequence is a small yield compared to the crops of commercial orchards, where trees get the best care possible. There were several striking instances of this in my vicinity this year. It was an unfavorable spring from an apple standpoint. The bloom was weeks late. Simultaneously the state was treated to a spell of extremely rainy weather, and bees had little opportunity to pollinate. There was a light set and a heavy drop. The crop, it became apparent, would be not greater than 50 per cent. of the 1916 production.

Here entered the interesting observation. Where many farmers had crops ranging from 5 to 65 per cent. of average, commercial, well managed orchards nearby had crops close to average and in some cases better. A large commercial orchard in an adjoining county, which picked 2800 to 3000 barrels last year, now has 3500 barrels. The next apple farm in point of size, had a crop of 3000 barrels, compared with 2500 in 1916. There were numerous similar instances surrounding me and in adjoining states, all going to show that good care pays big dividends—in poor as well as good crop years.

Planting Fruit Trees in Fall

Fall planting of fruit trees should be delayed to late November or early December, advises the United States Department of Agriculture.

A pomologist of the department writes in reply to a New Jersey inquirer he would hesitate to advise planting in any section as early as October, because of probable injury to the trees. In sections of the North where cold weather prohibits planting in November or December, he says, it is usually better to plant in the spring. Apple trees can be planted with safety in the fall farther north than peach trees and other less hardy kinds. At the Missouri Experiment Station it recently has been shown that little or no root action takes place with fall-planted trees until the surface of the ground has begun to freeze, and the trees planted early in the fall may lose considerable vitality before they begin root action.

Spray Now for Scale and Peach Leaf-Curl

One of the recent developments in spraying is the fact that the leaf-curl of peaches can be controlled just as well, and, in fact, much better, in fall than in spring, unless the spring application is made clearly before any growth has started in the buds. This should enable peach growers to get at least a large part of their spraying done in the fall. The work can be done with lime-sulphur, which will also control San Jose scale at the same time if applied at proper strength, according to J. P. Stewart, of the Pennsylvania State College.

For the leaf-curl alone, lime-sulphur can be diluted as much as one to a total of fifteen, in the case of the best commercial grades, which should give a density of about 1.02 in the diluted spray. This is obtained by using about 3½ gallons of a 32 degree concentrate in 50 gallons of spray. If home-made lime-sulphur concentrates are used, dilute so as to get the final density of 1.02, which will require about 4½ gallons on the average 50 gallons of spray.

If the scale is also to be controlled at the same time the rate of dilution should not be greater than one to a total of nine in case of the best commercial concentrates, or to a total of seven in average home-made material. This will require about 5 1-3 gallons of a 32 degree concentrate in 50 gallons of spray, or about 6 1-3 gallons of good home-made material in the same quantity of spray.

In the case of the scale at least, it is probable that the best results can be obtained by making the application within about six weeks after the majority of leaves have fallen.

Selecting Apples for Show

Nothing goes farther toward making the fruit exhibit of a farm product show successful than careful selection of the show materials. All judging is done according to a schedule, and frequently a plate which is inferior in appearance is given a premium over more attractive plates because of the care used in the selection of the individual specimens. There are five major points to be considered, according to A. F. Mason, of the Pennsylvania State College horticultural extension.

Blemishes are counted heavily. Thirty per cent. is allowed on the score card for this point. A blemish is any physical feature which mars the beauty and perfection of the specimen. A scale mark is a very severe blemish. The slightest worm hole is another severe blemish. Some judges will not award any place at all to fruit showing such marks. Limb-rub and healed curculio injuries are not so serious as the defects mentioned, yet in any close competition they will throw a plate into the discard. All specimens should be sound, hand-picked, and absolutely free from any spot or blemish.

Color and uniformity are the next two points in importance. "Well colored for the variety" is the ideal toward which the exhibitor should work. A Rhode Island Greening with a blush is unnatural, and would lose to a solid green Rhode Island Greening. A solid red Ben Davis would not be as strictly Ben Davis type as would a large striped red Ben Davis. High color is always desirable but it must be the color which is typical of the variety. Twenty per cent. is allowed on the score card for color. Under uniformity come the shape, size and color of the fruit. All specimens should be exactly the same size, same color and same shape. Because one or two fruits are brilliantly colored is no reason for including them on the show plate unless all of the specimens are as brilliantly colored. A plate on which all five apples are dull colored is better than one with three dull and two bright specimens.

Form and size rank equally on the score card. In form all exhibit fruit should be typical of the variety and even in shape, while in size it should be typical and also commercial. A very large Jonathan is unnatural.

Grange Interests

MRS. JENNIE M. RODGERS
Ceres Penna. State Grange

With the latter part of November our thoughts always turn toward Thanksgiving. I have never known any Grange to observe this day especially, but it seems fitting they should, as the first Thanksgiving day was celebrated by tillers of the soil. If all the members, past and present, were to meet together under the charge of the chaplain, what a grand and profitable time they could have. The finances of the Grange, if necessary, could be assisted on this occasion, if every one would give a thank offering. There is no one who has not something to be thankful for, and if they will turn a "Pollyanna" light on their troubles, will find them often a blessing in disguise.

November also brings to us thoughts of Ceres and corn nights. Many Granges have developed the idea of corn night as first presented, until they have a real agricultural exhibit with a women's display of household arts. Bethel Grange in southeastern Pennsylvania give an afternoon and evening to their show, with addresses and talks by specialists in various lines.

My experience has been that one of the greatest benefits to the lecturer of a Grange is the conferences under the direction of Pomona Lecturer. The meeting together of the lecturers of a district, discussing the questions assigned for the meeting, and in a round table talk solving the individual difficulties which confront them, cannot but improve the work; and if deemed wise, make it more uniform. Recently the regular semi-yearly conference of Pomona No. 3, of Chester and Delaware counties (Penna.), was held. Such questions as, "What can a lecturer do toward recovering worthy members who have ceased to attend Grange meetings?" "Do you find the printed program a success in your Grange, and what do you consider a balanced program?" and "The church, the school and the Grange. How may they work together for the benefit of husbandry?" were discussed and the program balanced by music and a reading.

From the lecturer of Springville Grange in New York state I have received a copy of their program for 1917, which is one of the best I have ever seen for a subordinate Grange. It consists of 12 pages bound in a substantial cover, and contains, besides a list of officers, eleven committees, mostly of three members each, and the names of 169 members divided into four divisions. The literary work as laid out for each meeting shows that the committee of four, which assisted the lecturer, gave a great deal of thought to it. Many of their good ideas I want to pass on to you in subsequent issues; but can only note, now, that their second meeting in November is to be a "Thanksgiving Program."

During the winter or dormant season is an extremely good time to do effective work in checking next summer's ravages from the tent caterpillar by collecting the egg masses in the trees and destroying them.

Scheduled Meetings

International Live Stock Exposition, Chicago, Ill., December 1-8.

New Jersey Horticultural Society, Newark, December 10-12.

Pennsylvania State Grange, Williamsport, December 11-14.

Maryland Agricultural Conferences, Baltimore, December 18-21.

Maryland State Grange, Bel Air, Dec. 11-13.

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Making Water Sets

CHARLES H. CHESLEY

The boy trapper will find it much easier to make sets for the small fur-bearers in shallow water than upon land. Water removes all scent of the human touch and this is one thing that the amateur trapper overlooks. It is not sufficient to set the trap unless surroundings are made natural and the human scent eliminated. Most fur-bearers have a very keen sense of smell and the odor left by a touch of the fingers is sufficient to spoil the set so far as certain creatures are concerned. Water eliminates all this risk and also helps to hide the trap. One may expect to capture muskrats, minks, raccoons and foxes in water sets, not to mention the rarer otter, which may be found in the wilder parts of the country.

The muskrat is perhaps the easiest of all creatures to capture and we will consider it first. Little or no skill is required to bring success, hence the boy trapper may well get his first experience with the muskrat. The animal is found in all parts of the country, probably being more or less abundant in every state in the Union. The fur does not become fully prime until late winter or early spring, at which time the pelts usually bring more than twice what they are worth in the fall. However, it is rather difficult to capture the muskrat in the spring, as the water is usually so high in its haunts that a boat is required to reach the trapping grounds. Again, food is usually more abundant, owing to the more extended feeding grounds, and the creatures do not take the bait so readily. From these facts it is evident that the amateur trapper will do better with trapping the muskrat during the months of November and December, even though the pelts bring less money. There has been a considerable increase in the popularity of muskrat fur of late, and last year saw prices for the raw furs unusually high. Probably this season will see a similar high price.

Wherever there is water, the muskrat is found. Some of the best trapping grounds are along the coast and about the salt water inlets and creeks. Thus New Jersey furnishes an immense number of skins, while great numbers come from the shallow lakes and sloughs of the Central States. Its home is the borders of grassy ponds and along meadow streams and ditches, as its food is composed almost wholly of the roots of grasses and aquatic plants. A small trap is suitable, but it is well to use one strong enough to hold a mink, as these animals are often taken in the muskrat sets. The so-called "jump" traps are excellent to use in muskrat trapping, as the jaws of the trap close so high on the leg that there is small likelihood that the victim can get away, once he is captured. However, it is well to fasten a set in such a manner that the captive cannot reach solid ground after being trapped. Thus the chain of the trap may be fastened to a stake set in deep water or to a sliding pole. The latter is simply a pole on which the ring at the end of the chain will slide one way but not the other. This is made possible by leaving the limbs on a green sapling just long enough to slip the ring up over but to hold it from going the other way. Fasten this pole at the bank of the stream or pond with the big end up and on an angle of about 45 degrees.

Wherever there are evidences of the work of muskrats, the traps should be set. In the paths which they dig to reach their homes in the bank or in the canals in shallow water, one will be pretty sure of success. Often no bait is necessary, but a suspended carrot, parsnip or sweet apple will help to lure the animals to the set. Where the water is deep, a floating platform may be used. This should be anchored not far from the shore and traps placed in position. Again, where the creatures are plentiful, a good many may be taken in a submerged barrel. Sink a barrel to within a few inches of the level of the water and arrange a tipping cover. This should be in the form of a barrel head, slightly smaller than the barrel and fastened at two opposite points. Bait should be placed on this, so that the animals will climb to the top for it and be dropped into the barrel. A foot of water in the bottom will drown the victims. A considerable number may sometimes be taken in one night by this method.

The methods mentioned for setting for muskrats are also good for mink, but more care should be used in concealing the trap, and meat or fish should be used for bait. The freshly killed carcass of a muskrat seems particularly desirable to the mink. One of the best locations to expect mink is along woodland brooks and rivers. In such places traps should be placed in holes, with the bait beyond. Hollow logs are good spots for the sets. Also one will frequently capture the mink by setting the trap on a log suspended above the water. A covering of leaves or light material is necessary, and fish oil, mentioned in a former article, should be dropped about the trap. Stone culverts are much frequented by this creature. The writer has in mind one such culvert that for years yielded from four to six minks each season. The only bait ever used in this spot was fish oil. Various other methods are employed in capturing the mink and the boy trapper will do well to keep his eyes open for signs of them. Wherever such signs are found traps should be set.

The raccoon is found about woodland streams and deep wooded swamps, where hollow trees abound. Strong traps should be used and the sets should be made in shallow water. A fish is the best bait for such sets. A small piece of bright tin or crockery, placed under the trap, will help to lure the animal, for it has a very strong sense of curiosity and seems to lose much of its caution in examining any bright object.

Testing if Soil Needs Lime

The best test for showing whether the soil needs lime, and how much, is to plant several plats of beets or clover in the field so all conditions will be natural. Plats 6½x10 feet give two 10-foot rows; one plat has no lime; one has 2 pounds broadcasted on it and raked in; one has 4 pounds, one 6, one 8 and one 10. The 2-pound plat will have at the rate of 12½ bushels per acre, and so on, giving the 10-pound plat over 60 bushels per acre. The 2-row plat that shows up best indicates what the field needs. This is much more reliable than using the same method on pans of the soil where conditions must be artificial; it also beats chemical tests. E. A. W.

Operating Tractors on Kerosene

A tractor manufacturer has called our attention to the fact that his machine and some others were operated at the recent demonstration at Plainsboro, N. J., on kerosene. Our representative understood that all of them used gasoline and so reported in his article, which appeared in our October 1st issue. We have made such investigation of these facts as we could at this late date, and find that several tractors did operate either wholly or partially on kerosene.

One benefit of the war is that it has induced consumers to study foods and food values.

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	Ex Large	Large	Medium	Small	II	II	II	III	III	III	IV
Red Fox	$18.00	$14.00	$9.00	$6.00	$10.00	7.00	$3.50	$2.50	$2.00	$1.50	$ .50
Raccoon	4.00	3.00	2.00	1.25	1.50	1.00	.75	.80	.60	.40	.20
Mink, Dark	8.00	6.00	4.00	2.00	4.00	2.50	1.50	.75	.50	.30	.20
Mink, Brown	6.00	4.00	3.00	1.50	3.00	1.75	1.25	.50	.35	.20	.10
Mink, Pale	4.00	2.50	1.50	1.25	2.00	1.50	1.00	.40	.25	.15	.10
Gray Fox	4.00	3.00	2.00	1.50	1.50	1.00	.75	.75	.50	.30	.20
Opossum	1.30	1.00	.70	.30	.50	.30	.20	.20	.10	.06	.02
Muskrats, Brown	.90	.65	.40	.20	.60	.35	.20	.50	.35	.20	.05
Muskrats, Black	1.10	.80	.60	.30	.80	.60	.30	.60	.40	.30	.10
Skunk, Black	5.50	4.00	3.00	2.00	2.50	1.50	1.00	.75	.40	.20	.05
Skunk, Short	4.00	3.00	2.00	1.50	2.00	1.25	.80	.60	.30	.15	.05
Skunk, Narrow	2.00	1.50	1.00	.75	.75	.50	.30	.30	.20	.10	.05
Skunk, Broad	1.25	.80	.60	.40	.50	.30	.20	.20	.16	.10	.05

Ginseng, Wild, per lb., $12.00 to $30.00

These Prices For Raw Furs Actually Paid By J. HENRY STICHT and Represent Real Market Quotations

References {Columbian Bank, New York / Dun or Bradstreet Agencies}

SHIP YOUR FURS TO J. HENRY STICHT—For a SQUARE DEAL

Share Renting

In the October 1st issue our contributing editor, W. F. Massey, answered the inquiry of one of our readers regarding share renting. Knowing that these agreements differ in various localities, we asked if any one could offer another solution. Mr. E. A. W., Street, Md., has accordingly sent us the following reply to the original question of E. S., Ohio—"I expect to rent my farm and I will furnish everything and the man will do the work; raise the crops, feed the hogs, milk the cows and make the butter. What share should I give him? What share of the increase of the hogs and cows should I give him?"—EDITOR.

An agreement for renting a farm on shares should always specify the number of acres to be farmed to each kind of crop; how much fertilizer per acre the landlord will give for each crop, naming brands of fertilizers to be used on each, or specifying their analyses; how each crop is to be disposed of, whether used on farm or marketed in raw form; kind of containers to be used for fruits, vegetables, or anything to be marketed and who is to supply the containers, with dates upon which they must be available. If surplus grain, hay, straw or anything is to be marketed the agreement should specify maximum distance to which the tenant must deliver landlord's share, and if such delivery is to be made upon demand or when convenient; it should say how many animals of each kind must be or may be kept and if their increase is to be marketed it should say at what ages or under what conditions they must be put on the market.

It would not be possible to exactly fill the needs of E. S., Ohio, from his incomplete statement, but in almost all the share rent cases with which I am familiar the tenant receives one-third, absolutely, of everything in its marketable form, whether surplus grain, hay, fruit, milk, butter, calves, pigs, fat hogs, beef animals (if home bred, but only one-third of net profit if purchased by landlord and fattened by tenant), colts and horses bred or raised from landlord's mares by tenant while in possession. The one exception to this is that when concentrates (as gluten feed, cotton seed meal, bran) must be purchased they are commonly paid for from the surplus wheat or other grains produced for market before these grains, or the proceeds from them, are divided into shares; but sometimes the landlord buys all from his share. Anyway the surplus grain, or its proceeds, is divided. The quantity of each concentrate to be purchased, per year, with its brand or rating, should be mentioned.

In all cases, with either crops, animals or other produce, it should be specified whether landlord and tenant shall each market his own share or one shall have power to market all at his convenience.

On a dairy and hog farm there would be no grain (except wheat), hay, etc., to market except the surplus over and above what the animals could consume. Of course, such surplus would be divided, the tenant receiving his one-third, as he does of the main crop after it has been changed into milk, butter, calves, pork, etc. If there exists a possibility of running short of feed, through no fault of either partner, the agreement should provide for the purchases to be made in such an emergency.

This is only a general idea and must be modified to suit special conditions. Share-rent farming is like any limited partnership business and only a strict agreement, as suggested above, can avoid misunderstandings and probable failure. Each must exactly know his privileges and liabilities. The tenant must have wider range of profit and privileges than when farming on a salary, because he bears the same proportional risk of loss by weather conditions, disease, insects, etc., as does the landlord. Naturally, the tenant's privileges include a reasonable garden and truck patch. E. A. W.

One Advantage of Fall Plowing

Plowing clover under in the fall rather than cutting the crop and allowing it to lie on the ground during the winter will largely prevent any loss of organic matter and fertility. This conclusion was established in recent experiments conducted at the Ohio Agricultural Experiment Station.

When the clover was left to lie on the surface of the ground for seven winter months, only about a third remained when analysis was made the next spring. About three-fourths of the original weight was found where the clover had been plowed under the previous fall. Chemical analyses of drainage water showed that four times as much nitrogen was lost from the plat where clover lay on the surface as from that having clover incorporated in the soil.

This loss of organic matter in clover lying in the field over winter is as great as where the crop is fed to live stock and the manure is returned to the field.

Hints on Selecting Corn for Show

Maturity and seed condition come in for the most consideration when selecting corn for exhibition, according to W. E. Hanger, of the Ohio College of Agriculture. The corn should have a bright, healthy color, well filled grains and dry.

There should be no moldy ears, no dark, discolored germs, no blisters, no cob rot or disease of any sort.

Very small undersized ears are discounted, but, on the other hand, it is not the biggest ears that win the prizes.

In selecting ten ears of corn for an entry, all should be chosen of one type. They should be of the same length and circumference, of the same shade of color and they should not be mixed, that is, white corn should have no yellow grains and yellow corn no white grains.

Queries Answered

Tile Draining Land.—I. T. H., Virginia, writes: "I want to know how wide a strip of land one line of tiles will drain, and if any cement is to be used, and what is the best way to lay the tiles? Is there any way except to join up one tile against another? I wish to do quite a lot of draining this fall and want it done the best way."

The amount of land a single line of tiles will drain will depend upon several things—the depth of tiles, the slope of the ground above the tiles, and finally the character of the soil itself. A tile drain will carry the water from 30 to 50 feet each side of the drain. Generally tile drains are laid in the lowest portion of the undrained area for the reason that the water collects upon these low areas and at the same time less digging is necessary than if the tiles are laid in a straight line from one point to another. In most cases nothing is used to cover the joints of the tiles after they are laid. They are merely placed together as closely as possible. Occasionally a bit of straw is laid over the joint to hold back the soil. Considerable care is necessary in laying a tile drain to have it work satisfactorily. I would suggest that you get some good bulletins on this subject. Write to the U. S. Department of Agriculture, Washington, D. C., for their bulletins on tile drainage and if you have a county agent in your county, consult him in regard to methods. A. E. G.

Fall Setting Strawberry Plants.—C. M., Missouri, writes: "What would be the best time to fall plant strawberries? Will they yield as much as if same number and variety of plants had been planted during the spring of same year?"

We find, here, that the best time to set strawberry plants is in November and I now have the land ready to plant. Our large plant growers here will not sell a plant until November 1st and none later than May 1st. Young runners of the present season are the only plants fit to set. I find that there is very little difference here between plants set last spring, for instance, and the plants set this fall, so far as the plants set are concerned. The spring planting will give a great deal more fruit next spring because there will have been a great increase in the number of plants from the growth of new runners during the past summer. W. F. M.

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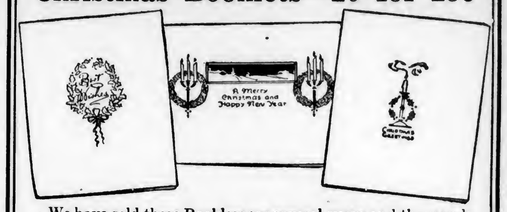

We have sold these Booklets for several years and thousands of people all over the country order them each Christmas. Nor is it any wonder when you consider their really remarkable value and artistic beauty, and the fact that you can get twenty neat, artistic, personal Christmas gifts for 25c. All of us have friends whom we wish to remember each Christmas but to whom it is not necessary to send an expensive gift. These little booklets meet such a need exactly. The illustration shows three of the cover designs. These covers are beautifully lithographed in Holiday colors. In each package there are seventeen others equally pretty. Each booklet has four inside pages and the cover; average size about 3 x 4 inches although the size varies with the different designs. On the inside centre page is an appropriate Holiday sentiment and a place to sign your name. Each cover design is different.

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Why You Should Use the Trap Nest

JOHN F. WENK

If you have never used a trap nest, no matter how few or many hens you keep, let the following words influence you to its value.

Give it a chance and it will tell you wonderful things about your birds. It will tell you which bird lays large eggs, which lays small eggs, which lays eggs of correct uniformity and if you trap nest your high producing female breeders it will tell you which hen's eggs are fertile and hatch a husky chick. It will tell you which are the layers and payers and which the drones and boarders.

A bird that lays 20 or more eggs in November is surely some bird, and the one which lays 8 or 10 or less is also some bird. Both will eat their share of high-priced feed. Surely it requires more time and attention, but oh, the satisfaction of the pot-pie you made of the boarders you found out by the trap nest.

Our egg laying contests would be failures, Lady Eglantine and her kind would never have been discovered and there would be no 200-egg strains but for the trap nest. Who rides in an automobile and who walks? The chap who trap nests and whose hens keep him, or Peter Tumbledown (usual apologies to the other fellow) who just keeps hens?

Some will raise the argument that you can't trap nest male birds. True, but you can get males from high-producing females by trap nesting. "But will he be a worthy son of a worthy mother?" says another. Put your selected breeders and a male whose ancestry shows he is worthy; run an experimental hatch, say in January, and you will know just what your male bird is good for before the main hatching season.

The breeding of like from like to like in live stock has proved that like begets like. So it will prove with poultry. Naturally, if hens with egg records of 200 or more would produce pullets which would all lay 200 eggs or more, fresh eggs would not be worth 75 cents per dozen at certain seasons. But the unfailing trap nest will tell you how many of the offspring of that 200-egg bird are worth keeping. Trap nests are essential to success under present conditions.

If this article will not convince you of the necessity of the trap nest, ask the fellow who owns one in your neighborhood and listen while he talks of flock percentage; about individuals which will reach the 200 mark; about how his grain dealer got sore because his feed bills were less when eggs were high; about how he bought that automobile or lifted his mortgage because his trap nests told him that his birds were keeping him. Then if you don't go home and build or buy some trap nests and became a real poultryman I miss my guess.

Why am I so keen on the subject? Here are facts. I put 150 April 10th hatched pullets into the laying house October 1st. Left the traps open for ten days so that the birds would get accustomed to them. By October 15th they were settled down for business and I leg-banded the birds as fast as I found them in the nests. November 15th I went over my records and found that 37 pullets hadn't laid an egg. I held them until December 1st and they still refused to shell out. I got 18 cents a pound for that bunch of ornamental flesh and feathers. December 15th I took another inventory and found that of the 113 left 21 had laid a total of 114 eggs, or an average of 5 plus for a period of 30 days; and that 92 had laid 1571 eggs in the same time, or an average of 17 plus. Quite a difference. I ate those 21, one at a time. January 1st I investigated my records again and found that 26 of the 92 had laid 20 eggs or more in November and that the same 26 and 11 others had laid 20 or more in December.

Result from trap nesting—more eggs from less birds at less cost of feed, and satisfaction without price in the knowledge that I wasn't keeping boarders for the benefit of the grain man.

The trap nest told me that over 40 per cent. of my flock were non-producers and I told myself I could cut my feed bill 30 per cent. and give the birds 10 per cent. more feed, which, I hope, they appreciate eating as much as I do giving.

New Jersey.

Culling and Disposing of the Culls

Some very interesting and enlightening results have been obtained by the poultry department of the New Jersey State Agricultural College in a series of culling demonstrations recently conducted on various poultry farms about the state. During the month of August a total of 2500 birds were gone over. The external characteristics were carefully examined, and about 750 birds, or 30 per cent. of the total, were culled out as unprofitable producers. In order to test the results of the culling, records were kept in each case of the egg production of seven consecutive days just previous to the demonstration, and also for seven consecutive days directly following. It was found that the production of the 2500 birds for this period previous to the culling was an average of 700 eggs a day, or a production of 28 per cent. For the 1750 birds kept, the average daily production during the following week was 692 eggs. This is a drop of only about 1 per cent. after 30 per cent. of the birds had been culled out, raising the percentage production to 39 per cent. In other words, these demonstrations reduced the feed bill 30 per cent., while only a trifle over 1 per cent. loss was suffered in egg production. It would be hard to find a more practical lesson in poultry keeping.

Fowls which have been culled out from the laying flocks may be profitably disposed of for table purposes at this season. Where they are rather poor in flesh, they should be confined to a pen for a week or so and fed a fattening mash. The type of market and the prices offered should regulate the amount of money spent in finishing off the birds.

In shipping live fowls to market, use substantial crates and avoid overcrowding. It is best to plan the time of shipment so that the least possible time is consumed by the journey. Live poultry will shrink from 5 to 10 per cent. on a 24-hour journey.

Dressed poultry may be scalded for local trade, but should be dry-picked when intended for the open market. Birds should be bled by running the knife through the mouth, and cutting the jugular vein, just back of the roof of the mouth. The brain may be stuck by running the knife through the slit in the roof of the mouth, with the blade pointed toward top of the head, midway between the eyes. This destroys the brain tissue controlling the muscles which hold the feathers. The market demands a dry-picked bird, as the carcass holds its color better and is less likely to spoil.

At this time of the year when the pullets are beginning to lay, a great many small eggs are going to market. This condition cannot be avoided, but the poultry department of the New Jersey Agricultural Experiment Station advises that the small eggs and the market sized eggs should not be packed together in the same crate, as usually prices on the small eggs will be returned for the whole lot.

Getting a Start With Geese

ESTHER MARIE BETTS.

In these war times when every bit of grain must be conserved the farmer who starts in the business of raising geese is wise indeed. Because of their fondness for grass, there is no fowl which will produce the same amount of meat with so little expense for grain. When starting in the goose business one need spend very little for equipment—a low shed, tight enough to keep out the snow, is sufficient. Plenty of good pasture is absolutely necessary, for they will live on grass almost entirely except during cold weather. A pond or stream is not necessary. Clean drinking water, deep enough so they can wash out their eyes, must be provided.

In deciding upon a certain breed, one must take into consideration the characteristics of each. The Grey Toulouse are the most common and they produce a large bird for market, but their egg production is very small. The Embden are also large and the white feathers bring a good price, but they lay only 20 or 30 eggs a year. A cross between a Toulouse goose and a Chinese gander makes a large bird which matures early, but considering everything, the White Chinese are probably the best. They will lay nearly twice as many eggs as the large breeds, are early maturing and the white feathers bring a much higher price than the colored or mixed ones. The birds are small, weighing only 12 or 15 pounds. This is usually a better size for the average family than a large goose. They are exceedingly lovely, equalling the swan in beauty.

It is well to buy young stock in the fall. A trio will cost from $10 to $20, according to the variety and breeding. They will become accustomed to new quarters sooner than mature birds and contrary to opinion, they lay well and the eggs are fertile. A mature bird should make from $5 to $10 profit each year. The chief reason why geese should be purchased in the fall is that they choose their mates then and should not be separated after that. Once mated they seldom change. We learned this by sad experience. After the breeding season is over, we once sold one of our ganders and two geese. After he was gone, one of the geese, whose mate we had sold unknowingly, began to droop and finally died. We could give no other reason except that she died of loneliness.

Poultry Show Dates

NEW YORK.

The Palace, Dec. 11-15. Secretary, L. D. Howell, Mineola, N. Y.

Madison Square Garden, Dec. 28-Jan. 2. Secretary. Chas. D. Cleveland, Eatontown, N. J.

Utica, Jan. 15-19. Secretary, L. J. Bushnell, Oriskany, N. Y.

White Plains, Jan. 9-12. Secretary, M. A. Claude.

Rochester, Jan. 8-12. Secretary, James H. Westcott.

PENNSYLVANIA.

Kutztown, Dec. 12-15. Secretary, Geo. C. Herman.

Sinking Springs, Dec. 19-22. Secretary, Adam H. Stitzel.

New Kensington, Dec. 10-15. Secretary, S. S. Bard.

Uniontown, Jan. 1-5.

Lebanon, Nov. 27-Dec. 1. Secretary, Sam Black.

Altoona, Nov. 26-30. Secretary, M. J. Cashen, 416 Spruce Ave.

Mohnton, Nov. 28-Dec. 1. Secretary, Geo. W. Hatt.

VIRGINIA.

Richmond, Dec. 4-8. Secretary, W. C. Lassiter, 120 Mutual Bldg.

WASHINGTON, D. C.

Washington, Jan. 15-21. Secretary, R. D. Lillie, 227 Maple Ave., Tacoma Park, D. C.

WEST VIRGINIA.

Charleston, Dec. 10-15. Secretary, Julian C. Byrd.

Huntington, Jan. 21-26. Secretary, Geo. Parent.

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Worth While Poultry Suggestions

F. V. L. TURNER

Cold storage manipulators have begun the fall drive on eggs—that the safe limit on quantity stored may be reached, the retailer is brought within the pale for the 40-cent kind that are avoided by egg lovers. The fresh egg still reigns supreme at or near 60 cents, and the egg farmer may feel no fear at this annual fall clearance sale of overplus to give the Thanksgiving purchaser a chance at profit contributions. Even the delectable hen—she of doubtful age but still a lovable prospect for the stewing pot, is now at a low ebb that the 400 per cent. surplus of stored fowl may have a chance at big money later. Verily the way of the manipulator is via the gullible public and the panicky owner recks not beyond his nose in disposing of fowl that will come into money making when the fall molt is ended.

Sell not thy holdings lest in selling ye be sold.

A fowl on the roost is worth ten in the storage.

"Nearby fresh gathered" are still in heavy demand with every prospect of a rise in price daily.

Ever try your neighbors out on fresh egg trade?

The average farmer's wife gathers the eggs in her apron—the average commercial egg producer carries his in by the pail full. There is a wide difference and a good reason in each case—which would you choose?

Star boarders may lend class to a city hashery but the same species are bad for henneries.

Still farther improve by selecting the better layers from the best laying bunch and you have your best breeders by next spring.

Pick out the layers by your own standard, place them in a separate house and watch the result—if you guessed right, by even 10 per cent., you are on the road to profit.

Stir up the whole hen system now and then with a tablespoonful of Epsom salts to every 25 layers. Mix it with three quarts of moist or crumbly mash for the 25 birds.

A stitch in time saves nine—DISINFECT.

Feed well always—feed unusually well until the pullet's eggs are of a salable size.

A little lime water in the drinking vessels keeps the vessel sweet and kills germs.

Have you arranged for that incubator early next spring? Hatch every egg possible to lead to the grand scheme of doubling poultry meat output next spring. The world at large needs it—the allied armies need it and there is money in it for the grower.

Every time you kill a disease germ you save money—DISINFECT.

Empty the drinking pans in the late afternoon and there will be fewer frozen vessels to contend with on cold mornings.

Take a look at the molters, note their bedraggled condition—add a little oil meal to their ration and feathers, needed to keep out the chill and damp, will help them a big heap by rapid growth.

Any nasty colds these damp days?—DISINFECT.

A Help for Winter Eggs

There have been a good many books published and a great many articles written on how to make hens lay in the winter, but it is doubtful if anything has been published that has proved as popular or successful as Poultry Bulletin, No. 219, "Increasing the Winter Yield of Eggs," published by the Department of Agriculture, Harrisburg, Pa.

After going through two editions the Legislature made a special appropriation for a third and revised edition with many added illustrations and much new matter. This bulletin is ready for this winter's work, is quite a book and can be had free on request by any one in Pennsylvania.

Crate Fattening Chickens

Material to be used for fattening chickens in crates should depend somewhat on the cost and on the purpose for which the fowls are being fed. If a hard white fat and white skin are desired, oats and barley should make up a large part of the ration. If yellow fat and skin are desired, corn meal should be the principal ingredient of the mash.

A simple, efficient ration for farm use consists of 60 pounds corn meal, 40 pounds wheat middlings, oat flour, barley meal or buckwheat middlings (or 40 pounds of a mixture of equal parts by weight of these materials) and 5 pounds of finely ground beef scrap. This mash is mixed with sour milk, either skim milk or butter milk, in the proportion of about 1½ pounds of milk to each pound of mash. The mash mixed ready for feeding should have the consistency of buckwheat cake batter. It is not necessary to mix the mash fresh for every feeding, as a slight fermentation makes it more palatable and more digestible.

The chickens to be fattened should be given nothing to eat or drink for at least 12 hours after they are placed in the crates.

At the first feed, only about one-third as much of the mash should be given as the chickens will eat. The amount fed should be increased at each feed until by the fourth feed they are being given all they will clean up in from 20 to 30 minutes. After the fourth feed, every effort should be made to stimulate the consumption of mash.

Feeding should be done at the same hours each day. Regularity is essential.—M. C. Kilpatrick, Ohio Agri. College.

Wonderful Egg Producer

Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and makes hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker, write E. J. Reefer, poultry expert, 4368 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his Free poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

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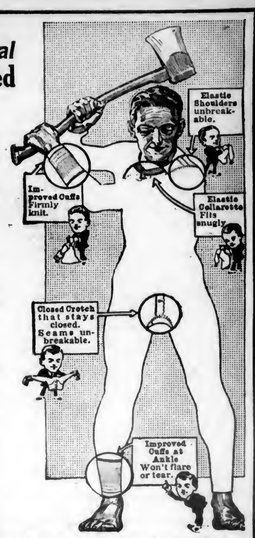
Everybody read about those big features chock-full of extra value over there in the illustration. You never saw anything like it at anywhere near the price. This underwear is just the right price for everybody and the underwear everyone should wear.



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If you need further information before ordering, send us a rough sketch of your building showing size of roof, length of rafters, etc. Mention the kind of roofing you wish and our low freight paid prices will follow.
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30x3	$6.50	36x4	$11.00
30x3½	7.50	34x4½	12.00
32x3½	8.50	35x4½	12.00
33x4	10.50	36x4½	13.00
34x4	10.50	37x4½	13.50

Send us your old worn tires. We will not only retread them but guarantee them at these little prices.

Sizes	Price	Sizes	Price
30x3	$5.50	36x4	$8.50
30x3½	6.00	34x4½	8.50
32x3½	7.00	35x4½	9.00
33x4	8.50	36x4½	9.00
34x4	8.50	37x4½	10.00

Add $1.00 to the above for Non-Skid Tire

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Where, How and When of Lime

OUR EXPERIENCE POOL

We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1232. DEC. 1.—What have this year's crops taught you regarding fertilization? Was top dressing the wheat with commercial fertilizer a success? Did a light dressing of manure help your hay? Did the potatoes miss the 10 per cent. of potash? What made your corn good on the mellow ground? Don't try to answer all these questions, but tell us in 250 words something along these lines which you have proved to your satisfaction this year.

TOPIC No. 1233, DEC. 15.—Do you belong to a cow testing association? What benefit have you derived from it? How many members and cows in it and what does it cost a year? If you do not think they are good things write and tell us your objections. If you weigh and test your own milk each day tell us how you do it and what you have gained by doing it.

TOPIC No. 1234, JAN. 1.—Looking ahead to the rush of spring work, what class of harrow do you think fits the ground best and why? Are you considering the purchase of larger harrows, or do you hook two together and drive more than two horses, or use a tractor to pull several in order to overcome the labor shortage? Tell us your experience in 250 words.

W. G. Y., Lexington, N. C.—Lime has become synonymous with better farming with us after using it for the past five years in our farming operations and noting the increase in our crops and the improvement in soil fertility. We use the fine ground raw lime altogether, applying from two to four tons per acre with a lime spreader of our own construction, made from a pair of mower wheels and an extra axle at a total cost of $15. We usually apply the lime in the spring ahead of a cultivated crop, which thoroughly mixes it with the soil before a grain crop or grass is seeded. The soil will usually tell us when lime is needed, if we but look. The variety of plants that come into a field when it is left one year in grass, is nature's indication of the need of lime. Then there is the litmus paper test, easily applied and reasonably correct, and finally, we have the acid test that the farmer can make and ascertain to some extent the approximate amount that should be applied to any particular soil. Lime has paid us first, last and most of all in our ability to grow Red clover and other legumes to perfection. They tell us that the use of lime renders the humic organisms more active in the soil, whatever that means. However, this much we do know, that on land where an extra heavy second crop of Red clover has been left to decay back upon the land after an application of lime and followed the second year with corn, we are practically certain of a bumper crop of corn. Lime and raw phosphate are putting a new life into the old fields, and a new vision to farm life. The wonder of it all is that we have been so long finding out what a wonderful force there is for production behind lime, legumes and live stock.

Miss I. E. B., Franklinville, N. Y.—We have always had good success applying lime to our soil. Have used it when planting sowed corn and when seeding down with grain. We have usually used it in the form of ground limestone, using about a ton to the acre. One piece we used ground limestone on was a piece of oats we were sowing and seeding down to grass. On this piece we spread the lime on the plowed ground, spreading it with a shovel, and then harrowed it in, then drilled in the oats and grass seed. Another field that we planted to sowed corn we spread the ground limestone (with a shovel) on the center of the field as an experiment. The lime also on this field was spread on the plowed ground and harrowed in. There seemed to be no difference in the corn where the limestone was and where it was not spread. But when we seeded the field to grass we found a vast difference between the piece where lime was and that on each side where no lime was put. The clover was taller, thicker, ranker looking and grew faster. Where the oats were sowed we saw the same great difference.

When a field shows a tendency to grow sorrel, buffalo grass, or the soil is inclined to be mossy, it is an indication that it is sour and requires lime. Our greatest benefit from the use of lime on our land has been in the hay crop, which has about doubled in amount on those pieces where lime was used the last few years.

As we keep a large dairy our hay is mostly clover, which we find the best for milch cows, so we consider the use of lime has been very profitable to us.

C. B. McG., Caldwell, O.—The use of lime has been very profitable in this section. I removed the dirt from a ledge of limestone which was about four feet thick, and used dynamite to break the stone and remove from the ledge. In two days time we had a large pile of stone. A lime pulverizer and an engine were used to grind the stone. We had nearly 100 tons of ground limestone.

The amount of lime applied to the acre varies with the different kinds of soil. Some use a drill to apply the lime. The best method, I believe, is the use of a lime spreader; this scatters the lime evenly over the ground and the use of a harrow will thoroughly mix the lime with the soil. A great many farmers are sowing alfalfa, and in sandy soil lime is a necessity, as the alfalfa would be a failure if the soil did not contain lime. Lime will sweeten sour ground so it will raise profitable crops. Ground and crushed limestone can be used for many purposes around the farm.

Broken limestone is the best for concrete and can be used for walks, foundations for buildings, etc.

F. A. K., Williamsville, N. Y.—Our farm had a piece of land on it that was about two acres in size and off of which we could not get half the crops we got off of land of the same size in adjoining fields. When we got on this farm two acres of land looked as though it had not been worked for some time. The farmer that moved off the land told us not to waste our time on it, as it would not produce much. We plowed it and gave it good treatment, but when the crops were harvested they were no good. We tried different kinds of fertilizer and the results were the same. After giving this land about three years time to prove itself we decided upon another treatment. Upon examining the soil closely we discovered that it was poor in texture. This would have been corrected, because we added enough humus to improve it, had another bad element not been there.

We obtained litmus paper and giving the soil a test found it to contain much acid. This proved beyond a doubt that the soil was sour and that we were on the right track this time. We also found that in the majority of cases of sour soil the underdrainage was faulty, and on farther examining the soil found it to be so. Then we went after the soil from the bottom up. The subsoil was blasted, using a half stick of 20 per cent. dynamite in each 3-foot hole, the holes being about 12 feet apart each way. After the blasting the soil was plowed and harrowed, then given a dusting of air-slaked lime, enough to make the top white. The lime was applied with small shovels from a wagon. Farther work was postponed on account of heavy rains. The land dried off readily and when the time came to do planting the lime was nowhere to be seen. We used corn as a test crop. This was planted after the soil had received a light dressing of commercial fertilizer. The corn crop was better than that on adjoining land.

W. A., Marriottsville, Md.—My experience with lime is limited, but am well pleased with results. Two years ago I moved on this poor farm just in time to seed for wheat. I limed 22 acres at the rate of 800 pounds per acre of hydrated lime. Hired a lime spreader that did splendid work, and paid 20 cents per acre for use of it. Got a splendid stand of clover all over that 22 acres. Last fall I limed 10 more acres that I seeded to wheat, and had another good stand of clover. The past spring I put 600 pounds of hydrated lime on my corn ground. The field made a good crop of corn, but is better this year.

I have not had any experience in judging when soil really needs lime, but none of the neighbors know when any was put on this farm. Lime has paid me well.

C. C. C., Jr., Penn Laird, Va.—In the last five years we have applied something like 500 tons of lime to our farm, pricipally marl, though some burned or quick lime was also used. Marl being destitute of any caustic properties, we have applied it in various quantities, ranging from 1 to 5 tons per acre. However, 3 tons per acre have given us as good results as heavier applications. While we have applied marl at all seasons of the year, we rather prefer fall to any other time, just previous to seeding wheat, after the ground has been smoothed down somewhat we apply marl. For some time we sowed it with a lime drill, but later on we discovered that it was easier and quicker applied by simply throwing it off of wagon with shovel. The harrow, we found, distributed it evenly over the ground and in the end it was as well applied by hand as with lime drill.

When we cannot grow clover on a field we know it is acid and needs lime. Other indications are sheep sorrel or sour grass. This sour grass is seldom found on anything but acid soil.

Clover has no doubt paid us better from liming than any other one crop. We have gotten some wonderful gains in corn from liming, but we first got the clover, plowed it down and followed with corn. Our most noticeable result from the use of lime has been in clover.

J. R. T., Edinboro, Pa.—Eight years ago I began using lime. For years I had much trouble in getting good clover on the new seeding. I had taken great pains in fitting the ground for the seeding, but was never satisfied with the results. By studying bulletins and farm papers and talking with state specialists, I came to the conclusion that my ground needed lime. That fall I put in two acres of wheat on a poor piece of land. The soil was a sort of a coarse gravel and not extra rich. I bought two tons of raw ground rock and applied it with a lime spreader. The field was well prepared before sowing, but no better than I had been in the habit of doing.

The result was an extra good stand of clover. Since then I always use lime (raw rock) on the new seeding of both oats and wheat. I generally use one ton per acre of the raw rock, because I think it gives me better results.

There are several methods of determining if lime is needed. The litmus paper is one way. Take a piece of blue litmus paper and put it in the inside of a ball made from the soil being tested. If the paper turns pink the soil needs lime. I have never used lime on any crop but grass, where I feel it has paid me abundantly. Before using lime I rarely, if ever, cut a good crop of clover, but since using it I have always had good clover hay.

I fit the ground thoroughly and see that the lime is well mixed with the soil before the seeding is done. I apply the lime as long before seeding as possible. Where the seeding is to be done in the spring it would be well to prepare the bed in the fall and apply the lime.

E. A. W., Street, Md.—I have found common quick lime, as shipped loose in carload lots, a much better investment than some of the various brands of prepared land lime put up in paper, muslin or burlap sacks. I haul this lime into piles of 20 to 30 bushels and leave until air changes to fine powder; then spread over plowed land from low sled with shovels and immediately harrow deeply. Other methods may be less laborious but give no better results. Ten bushels per acre is enough for light soils, unless very acid; this quantity means more frequent applications, but gives better returns for money invested.

I always like to lime before seeding to wheat, grass, beans or alfalfa, particularly after tomatoes or potatoes, but then I never apply heavy overdoses, as some do—you can overdo it with lime.

Perhaps the most noticeable benefits from lime have been where clover or alfalfa followed the crop to which lime was applied, because its action sweetens the soil, improves drainage, conserves moisture, and makes the natural plant foods more available, besides helping the legumes to collect nitrogen from the air.

It is hard to make some people believe that lime does not add plant food or strengthen the soil as does bone meal, tankage, acid phosphate, etc, but that it only puts the soil in good humor and ready to give its best to the plants. If they get a good crop from one application of lime they continue to apply lime to the same field without adding any real plant food and then they blame the lime because that field stops producing. They refuse to see that repeated liming may coax all plant food from the soil unless it is regularly reinforced with good manure, commercial fertilizers and vegetable matter.

Beat the High Cost of Farm Labor

WITH

The Maynard

$62.00 And Up

Burns Kerosene or Gasoline

$62.00 Complete Sawing Outfit

740A62 Complete four-wheel steel truck with saw frame and 26-inch saw blade. Truck all bored and fitted so 5-H.P. Maynard Engine can be mounted by simply inserting six bolts; 24-inch front and 26-in. rear steel wheels; 3-inch tires; 3-inch axles; 4-inch sills; complete with tongue. Shipping weight, 800 lbs. Price..... $62.00

740A64 Same as above, but heavier, with sills bored and fitted for Maynard 7-H.P. Engine; 5-inch sills; 28-inch front and 36-inch rear wheels; fitted with 28-inch saw blade. Shipping weight 895 pounds. Price, each..... $65.00

Old Reliable Two-Hole Sheller

Large capacity, well made, made of hardwood, strongly bolted; nicely painted. Shafts are cold rolled steel of size to stand the most severe strain; run in babbitted boxes. Balance wheel heavy and large diameter. Height to top of feed table, 39 inches; width, 24 in.; length, 4 feet 4 inches; capacity, 35 to 45 bushels per hour. Furnished with a wire cob rake which carries out cobs and prevents clogging. Also carries out the silk and husks. Shipping weight, without elevator, 295 lbs. Shipped from factory in Ohio.

919A1022 With fan, feed table and 12x3-in. pulley, crank and cob carrier. Price..... $18.00

919A1024 Five-Foot Sacking Elevator. Shipping weight, 85 lbs. Price, each..... $9.25

919A1025 Eight-Foot Wagon Box Elevator. Shipping weight, 190 lbs. Price, each..... $14.00

See Free Farm Bargain Book for prices and descriptions of other shellers.

Little Wonder Grinder

Two-horse power needed to run it. Strong and durable. Burrs, 5½ in. in diameter, made from a composition of extra hard metal. Will grind 7 to 20 bushels of grain per hour. Furnished with one set of fine grinding plates and one set coarse. Pulleys are 6½ in. in diameter. Shpg. wt., 90 lbs. Shipped from N. Y.

719A1152 Price, with two sets of grinding plates..... $10.50

Extra Grinding Plates, pair..... 75c

Double Action High Pressure Force Pump

For wells up to 30 feet deep, for pumping water to storage tanks; for supplying residences, for irrigation, for spraying orchards, pumping oil, etc. Mounted on heavy cast iron base. Cold rolled steel shafts 1⅝ inches in diameter. Fitted with 1½-in. suction and 1¼-in. discharge on both sides. Shipping weight, 200 pounds.

726A1380 Geared three to one with tight and loose pulleys, 14 in. in diameter, 2½-in. face, for gasoline engine. Price..... $25.90

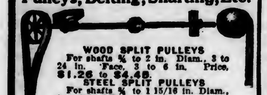
726A1381 Same as above, fitted with pneumatic attachment. Price..... $27.65

Countershaft Pump Jack

Designed for use either on beam overhead, on side wall or post, where the position or style of the pump will not admit of the use of a vertical jack. By making a connection between the pitman or the jack and the pump handle, it can also be used on the floor or platform to operate a horizontal pump. Made with heavy steel shafts, babbitted bearings, cut gears and tight and loose pulleys. Stroke adjustable from 4 to 8 inches. Pulleys, 14x2½ inches. Shipping weight, 56 lbs. Shipped from factory in Indiana. $9.85

940A814 Overhead Pump Jack. Price..... $9.85

Pulleys, Belting, Shafting, Etc.



WOOD SPLIT PULLEYS

For shafts ¾ to 2 in. Diam., 3 to 24 in. Face, 3 to 6 in. Price, $1.26 to $4.48.

STEEL SPLIT PULLEYS

For shafts ¾ to 1 15/16 in. Diam., 3 to 6 in. Face, 3 to 6 in. Wt., 1⅝ to 7 lbs. Price, $1.62 to $2.88.

COLD ROLLED STEEL SHAFTING

71A3220 The best Cold Rolled Steel Shafting; smooth, straight and uniform size the entire length. In following lengths only: 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 24 feet.

Size, in.....	¾	1	1¼	1½	1¾	2
Wt., lb., lbs..	1½	2½	4¼	6	8¼	10¾
Price, foot...	12c	21c	33c	47c	64c	84c

For complete line of Transmission Supplies, including Pulleys, Shafting, Rubber, Canvas and Leather Belting, etc., see page 127 of our FREE Farm Bargain Book.

Monarch Power Feed Cutter

$32.30

Our most popular size cutter. For ordinary farm use. Frame is heavy hardwood, firmly bolted and braced. Feed table ample size with fixed sides. FEED throat large, permitting fast, easy feeding. Shaft is 1¼-inch cold rolled steel. FEED ROLLS ARE LARGE AND DRIVEN BY EXPANSION GEARING. Pressure controlled by hardwood spring. Change of cut accomplished by sliding one gears. Four 11-inch tempered tool steel knives which cut with a downward shear. Steel cutting bar has four edges which can be used in turn before regrinding is necessary. Cuts ¾, ⅝ or 1 inch or can be made to cut 1½ or 2 inches by removing one or two opposite knives. Friction safety flywheel. Capacity, 2 to 3 tons per hour. Pulley, 12x4 inches. Shipping weight, 400 pounds. Shipped from New York warehouse.

719A1064 Monarch Power Feed Cutter. Price..... $32.30

719A1065 Crank for hand use. Price..... $0.95

919A2329 Swivel Elevator, 12 ft. long $28.95

919A2330 Extension for Elevator. Comes only in 4, 8 or 12-foot lengths. Per foot..$1.05

Elevator and Extension shipped from factory.

Horse Drawn Engine Trucks

740A82 Truck for 3 and 5-Horse Power Maynard Engines, with 24-in. front and 36-in. rear steel wheels with 3-inch tires complete with either shafts or pole. State which is wanted. $35.00

Weight, about 670 pounds. Price.....

740A84 Truck for 7-Horse Power Maynard Engine, with 28-inch front and 30-inch rear steel wheels with 3-inch tires. Complete with pole. Weight, 760 pounds. Price..... $36.50

EXTRAS

Neckyoke, doubletree and singletrees. Set $3.00

Gear Brakes. Price..... 4.50

$17.90 Pole Saw Frame

Strong and durable. Balance wheel is placed on separate shaft near base of machine, no danger of it striking the wood. Table has steel extension on which wood drops after it is sawed. Mandrel, 1 7/16 inches in diameter, 49 in. long; 1⅝-inch arbor, 6x8-inch pulleys. Boxes lined with babbitt metal. Center pulley hung on heavy bracket. Will not get out of alignment. Takes blade up to 30 inches. Requires from 3 to 5-H.P. Shipped from New York or factory in Southern Pennsylvania.

719A1640 Frame without Blade. Price..... $17.90

Shipping weight, 320 pounds. Price

Trucks for Small Engines

$4.50

These trucks can be used for mounting any small gasoline engine. Iron axles with iron bolsters and tongue. Front wheels to turn under. Engine mounted by bolting its own skids direct to the truck bolsters. Iron wheels 8 in. diam. 2-in. face.

740A841 No. 1 Truck for engine of 400 lbs. or less. Wt., 50 lbs. Price, each..... $4.50

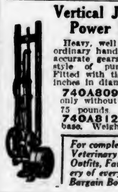
740A842 No. 2 Truck for engines 400 to 1,200 lbs., with 12-inch iron wheels. Weight, 140 lbs. Price..... $7.25

Separator Speed Governor

This speed governor runs the separator all the time at its proper speed; it relieves the separator of all jar and vibration of the engine; it will not allow the separator to run faster than you set the pulley to run; by means of a cut out device the power can instantly be switched off, and resumed again without disturbing the adjustment. One belt is run from the engine to the governor and one from the separator. Can be driven from a line shaft or direct. Mounted on floor, sidewall or ceiling. Runs in either direction.

740A902 Speed Governing Pulley on stand, Wt., 30 lbs. Price..... $7.60

Vertical Jacks for Power Pumps



$3.65

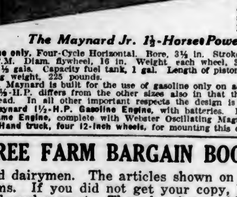
Heavy, well made jack for connecting ordinary hand pumps to engine. Strong, accurate gears. Two styles to fit any style of pump. Adjustable stroke. Fitted with light and loose pulleys. 15 inches in diameter.

740A809 Pump Jack, with clamps only without base. Weight, 75 pounds. Price..... $3.65

740A812 Pump Jack, with heavy base. Weight, 85 lbs. Price $4.50

For complete line of Fencing, Roofing, Veterinary Instruments, Blacksmiths' Tools, Farm Implements and machinery of every kind, see our FREE Farm Bargain Book.

Maynard 1½-H.P. Gasoline Engine



$28.90

This is the little brother of the big Maynard illustrated and described above. It is made throughout with the same care and of the same high quality materials. It is also sold under the same broad guarantee and 60-day home trial test. The only difference is that the Maynard Junior burns gasoline only. Read these specifications and order today. Shipped promptly from stock in New York City.

The Maynard Jr. 1½-Horse Power Gasoline Engine

Type, Gasoline only, Four-Cycle Horizontal. Bore, 3½ in. Stroke, 5 in. Normal speed, 500 R.P.M. Maximum speed, 600 R.P.M. Diam. flywheel, 16 in. Weight, each wheel, 34 lbs. Diam. crank shaft, 1¼ in. Capacity water hopper, 1½ gals. Capacity fuel tank, 1 gal. Length of piston, 4 in. Diam. of piston, 3 in. Diam. of pulley, 4 in. Face of pulley, 3 in. Shipping weight, 235 pounds.

The 1½-H.P. Maynard is built for the use of gasoline only on account of the very small amount of fuel used to run it. The 1½-H.P. differs from the other sizes also in that the cylinder head is not water jacketed but is air cooled instead. In all other important respects the design is the same.

740A84 Maynard 1½-H.P. Gasoline Engine, with batteries. Price..... $28.90

740A85 Same Engine, complete with Webster Oscillating Magneto. Price..... $34.75

740A841 Hand truck, four 12-inch wheels, for mounting this engine. Price..... 4.50

OUR FREE FARM BARGAIN BOOK contains 216 pages of bargains for farmers, stock raisers and dairymen. The articles shown on this page are only a few of its 25,000 items. If you did not get your copy, borrow your neighbor's or send us a postal card request. There has been a big demand for this book because it quotes very low prices on standard farm articles. Unless the edition is exhausted before we get your request, we will gladly mail you a copy free and postpaid. It will save you a third—perhaps a half. Ask for a free copy today.

The Charles William Stores New York City

FOR OUR BOYS & GIRLS — THE PRACTICAL FARMER P·I·O CLUB — FARM

THE MAGIC WORD:
OR LADDIE AND POLLY IN THE COUNTRY

Written especially for this paper by Uncle George, founder of the P. I. O. Club in The Practical Farmer

INTRODUCTION.—CONTINUED.

The big fat policeman helped the children out of the patrol wagon and up the steps. In a few minutes the great wide doors had swung open and Laddie and Polly disappeared in the station house. The policeman took them in front of another policeman, called a sargeant, who was sitting at a desk and he pressed a button. Far away the children could hear a faint ringing of a bell, which reminded them of the bell at school.

In a few minutes a very kind faced woman came and reported to the policeman, who had rung the bell. "Mrs. Donovan, here are two little wanderers; please take charge of them and do what is necessary," and then he added, "and be sure to tuck them in tight."

Mrs. Donovan, the matron at the police station, led away the two little orphans, and when she had seated them in a large room, she took Laddie away with her into a room where there was a large bath tub. She returned in a few minutes with some clean clothes, Laddie's size. She handed him a cake of soap which made him look at her with wonder eyes.

"What is this for?" he said.

"That is soap," she said with a smile as she turned on the water for his bath. "Take a good, hot, steaming bath, put on your clean clothes and come out the other way."

"Gee," said Laddie, "this looks like the fountain in the park where we go bathing, but the water here is warm." In a little while Laddie appeared with his clean clothes on and it was Polly's turn next. She soon returned with a new dress on and her face so clean that Laddie hardly knew her.

Mrs. Donovan then took them into the supper room, where some hot porridge and bread and butter were waiting for them. They were so hungry, it seemed to the good, kind woman as though they would eat the soup, plates and all.

When the meal was finished Mrs. Donovan took Laddie up to the second floor, showed him a little bed in one corner of a large room. She laid out a night gown for him, leaned over and kissed him good night.

Then she returned to where Polly was and took her to the other end of the building, where she gave her a night gown and pointed out a little white bed which was to be hers.

It seemed funny to the two children, and their lonesomeness had disappeared. Never before in their lives had they been so clean and had such nice clothes on. Laddie snuggled into bed and was soon fast asleep. In the middle of the night he was awakened by a slight touch of something on his nose. Looking up he saw a fairy sitting on the end of the bed. She was much larger than any fairy he had ever seen pictured in the books that Miss MacDougall had shown them at school.

The fairy was all covered with velling, and on her back were two huge wings like the wings of a butterfly. In her hands she carried a wand made of gold and the end of which was a diamond set in rubies.

When she saw Laddie open his eyes she said to him slowly: "My little man (for you are to be a man now, because you have been so good and kind in this world, and have taken care of your mother and sister with courage and cheerfulness) I am going to give to you something which no child has ever had before. I will call it The Magic Word. With it you can unlock all the secrets of nature. You will understand the language of flowers, the speech of the cattle and animals. The humming and twittering of the birds, and the droning of the bumblebees. You will understand the singing of the brook, and all nature will unfold to you its secrets and its wonders. Tomorrow there will come to you two other fairies, not in beautiful dresses as I appear to you tonight, but they will be a farmer and his wife. You must understand that there are kind fairies in this world, and while their dress may not be beautiful, still their hearts are the hearts of fairies.

"I will now whisper in your ear The Magic Word. Close your eyes tight and don't peek at me while I am giving you this word, which must never be given to any one, not even your sister Polly, although she can understand the things that you understand, because you have The Magic Word, even if she has not."

So saying, the fairy bent over and whispered The Magic Word in Laddie's ear.

(To be continued.)

Dear Boys and Girls:

I am delighted to think that so many of you have taken the trouble to sit down and write letters to me. I just love to get letters, especially the kind which show me what you are thinking about and which are a help to me. I was wondering the other day what my object was in writing for you. What am I trying to do?

I took myself off in the corner and had a real heart to heart talk with Uncle George.

I said, "Look here old fellow."

Of course, I am not very old and that is why I can talk to myself this way.

"You have a great responsibility resting on your shoulders. You are talking to thousands of children and they believe what you say, therefore, you must always speak the truth."

Wasn't I brave to talk to Uncle George that way?

Then I said: "What are you trying to do for the boys and girls in the Middle Atlantic States?" and I answered to myself, "I am trying to make just one boy or girl great—successful."

Now you have just exactly what I want to do. If only one of you becomes great and famous because you are a member of the P. I. O. Club, then I shall be happy and I know you will be happy.

What one word can I give you to start out on your way towards fame?

You know that many farm boys have become famous, and you will find that many women whose names appear on the pages of history have spent their early life on the farm. Why did they become famous? Because they learned in early life the meaning of the word COURAGE. Courage is the opposite of dis-courage.

I think it is a grand thing not to be afraid of a horse. I think it is a still grander thing not to be afraid of drudgery. The great men of the world have been those who tackled their jobs with a will, whether they were little things or big things, drudgery or pleasure.

If you go out and have a little exercise at the wood pile, which you may detest, and after you have chopped enough wood you stoop to count the sticks, the patience which you display will help you in after life when you are the president of a bank and have to count millions of dollars.

If your dream is to be the mistress of a grand mansion how do you expect to manage the servants if you don't know how to wash dishes yourself?

Above all, don't waste your time, for time is money. I hope that some day you will look back and say:

The happiest days of my life were when I was on the farm reading the talks of .

Always yours,

Uncle George

ANSWERS TO PUZZLES IN NOV. 1ST ISSUE.

1. A horse has six feet. His fore (four) feet and his two hind feet.

2. Rhode Island.

3. *Your* school is the best school in the world and *your* home is the best home in the world.

QUESTIONS.

1. I am composed of three words. The first word is composed of three letters and is what goats like to eat. The next word has three letters and is a part of the verb "to do." My last word with three letters is part of the word "eat." I am, all together, a man who runs for office. Name me.

2. Take any word in the following sentence and make a spice out of the letters in it: "John came to town."

3. Make two words from the letters: H S O T R N E.

Evidently the time was too short last time, for only one member, James Oliver Jacobs, Pa., has sent in a correct answer to all of the puzzles up to the time we have to close this page. How many bright boys and girls will try for our honor roll next time? Uncle George wants to see how good you are at puzzles.

P. I. O. CLUB NEWS

MERCEDES GUYTON, PA., writes to say that a story in every issue is the thing. How do you like "The Magic Word," Mercedes?

EMMA SAUL, N. J., has sent me three long letters which I have read twice, because they are so interesting. Emma likes our secret and we are glad of it, because there are some more secrets coming.

MICHAEL M. LEONARD, PA., is all excited about our secret, too. Write us again, Michael, and tell us what you think of P. I. O.

MARGARET H. COOCH, DEL., has a town named after her. Isn't that grand? We wonder how she likes our fairy story in this issue.

ALICE JACKSON likes puzzles. We wonder why it is so many of our North Carolina boys and girls are so fond of puzzles. Can you tell us, Alice?

WALTER BURRELL, PA., writes so well I wish our other boys and girls could see his splendid letter.

JOSEPH BAUER, DEL., sends us a splendid suggestion which we will take up later. Remember this is your Club, so send your suggestions along.

BORTIE MATTHEWS, MD., says that our P. I. O. Club is a good idea, because it starts our members thinking. Thank you for the new idea.

FRANK S. BRANCH, N. Y., sends a dainty little note asking to be a member. Write more next time, Frank.

ROSE EMPER, N. J., wants to know what she can do to help in the war. We would like to hear from our members as to what they are doing for our country, so that we can pass it on to Rose. In the meantime we ask her to be kind. If everybody was kind the war would not last one minute.

Now let us all work together so that the postman will have to make two trips with Uncle George's mail.

Well, our P. I. O. membership buttons are out at last. I had delays and disappointments about them, but I finally got them—a few days late, but well worth waiting for; they are fine, and will surely set the boys and girls who are not in the secret guessing. If you are entitled to one and have not received it, let me know at once. "Our Motto'" card goes to each member with the button. Something to think about in that motto—well worth learning, too. It ought to find a place on the wall of every Middle Atlantic States farm boy's or girl's room.

By-the-way, I want to again call attention to the fact that P. I. O. is a *Middle Atlantic States* farm boys' and girls' club; I'd like to "Uncle" the farm boys and girls in every state in the Union—but I can't—this country is too big for me! So I'm obliged to limit our membership to the following states: Pennsylvania, New York, New Jersey, Delaware, Maryland, Virginia and West Virginia—yes, and I'll add Ohio and North Carolina—but that's all. Goodness knows there are enough nephews and nieces in those states to keep me busy!

It's funny, but the girls are still leading in the P. I. O. membership—in spite of what I said last issue. Yes, of course I've had more pledges from the boys since then, but I must have stirred up the girls to action, too, for they are holding their lead finely so far. Now come on, boys—all together! Sign up your pledges and get them in as soon as you read this—even it up with the girls by the time the next paper comes out. You'll have to hustle, though, for I happen to know that the girls are going to try to keep their lead!

PLEDGE. 3

Dear Uncle George:

I promise to P. I. O. if it does not interfere with my conscience or my duty to my parents and friends. Please tell me the key to the secret of P. I. O., which I will not reveal except to brother and sister members of the P. I. O. Club.—

(Name*).....

(Address) P. O.....R. F. D.....

Age..... State.....

*Write or print your name plainly and don't forget to dot your I's and cross your T's. Address all letters to UNCLE GEORGE, care Practical Farmer, Box 1321, Phila., Pa

The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address
WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

DECEMBER 1.—Each year new ideas are wanted for making Christmas gifts. Tell us in not more than 250 words how you will make some of this year's presents. What farm products do you find make acceptable gifts, and have you any special way of packing or preparing them?

DECEMBER 15.—Christmas candies, cakes and pies. All of us will be looking for something good and out of the ordinary for topping off the Christmas dinner or holiday festivities. Tell us how you make some of these things and any special way you have of serving them.

JANUARY 1.—In what ways can we improve The Practical Farmer for 1918? What features in it do you and your "men folks" like best and which ones don't you like? Give us your honest opinion in not more than 250 words, and while we cannot promise to do all you suggest we will seriously consider all ideas.

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

Successful Cake Baking

Miss P. Y., Mt. Pleasant, Pa. — The secrets of successful cake baking are:

1st. Use purest and best ingredients. If you must practice economy, do so in quantity, not quality.

2nd. A small quantity of salt must be used in every cake (even though not given in every receipt).

3rd. Be careful of measurements. Cupfuls of dry ingredients are measured level, teaspoons and tablespoons should be rounded, while liquid measure should not be overflowing.

4th. Cream butter and sugar well, or until all the grainy part of sugar becomes smooth. Then add beaten yolks of eggs, one at a time, repeat creaming butter, sugar and eggs. Next add liquid measurements.

5th. Sift flour several times, measure, add baking powder and sift again.

6th. If fruit is added it should be thoroughly cleaned and lightly dredged with flour, to prevent falling to bottom.

7th. Lastly fold in beaten whites of eggs.

8th. Never grease pans with salted butter, as it easily burns and causes the cake to stick to tins.

My favorite cake receipt is devil's food, made from 2 cupfuls brown sugar, 2 cupfuls flour, ½ cupful butter, ½ cupful sour milk, 2 eggs, ½ cupful of boiling water poured over ½ cupful of cocoa; into this stir 1 teaspoonful of soda. Add to the cake mixture and beat well. Bake in two layers and put together with a white icing coated with chocolate.

Mrs. F. W., Springville, N. Y.—To my mind, the secret of successful cake baking is in beating the ingredients thoroughly together. I beat the sugar, shortening and eggs until light, then after stirring in the flour I beat it and beat it and then beat it some more. I think this is what makes the cake fine grained and light. The pans I use are tin.

One of my favorite cakes is Prince of Wales cake, made as follows: 1½ cupfuls of sugar, ½ cupful shortening, 1 cupful thick sour milk, 2½ cupfuls flour, 2 teaspoonfuls soda, 1 teaspoonful each of cinnamon, cloves and nutmeg, 4 tablespoonfuls dark molasses, yolks of 3 eggs, white of 1, a pinch of salt. Bake in three layers. Makes a large cake.

For icing I use sugar and water boiled together until it hairs (about a cupful of sugar and ¼ cupful water), stir into the 2 beaten egg whites; beat thoroughly until nearly cold, then stir in a few chopped raisins and a few chopped nuts. If one prefers the plain white icing, as I sometimes do, the raisins and nuts may be left out.

E. G., Buchanan, Va.—Attention to details counts for success in cake making as in most other things. For instance, too much sugar makes sad, heavy cake; too much flour a coarse, porous one, and too much baking powder a dry one, while, of course, too little of any ingredient has a bad effect also; therefore I think accurate measurements, with care in mixing and baking, are the secrets of uniform success. In these days of conservation of fats my favorite receipt is for the following:

Sponge cake.—(Level measurements.) 3 eggs, 1 cupful sugar, 1 1-2 cupfuls flour, ½ cupful cold water (for yellow cake), 1 teaspoonful baking powder, 1 teaspoonful vanilla or lemon, and ¼ teaspoonful of salt. Sift the flour before measuring, add baking powder and salt and sift once or twice again. Beat egg yolks very light, add sugar gradually, then the flour, beating all the time, then the water, also gradually (boiling water makes a white cake of beautiful texture) and lastly fold in the stiffly beaten egg whites. This may be baked in many ways. Best of all I think is in a large pan (mine measures 8½x12½ inches), spread with plum jelly and rolled up like a cherry roll, or spread with the following filling: 1 square of unsweetened chocolate, grated, same measure of sugar, 2 tablespoonfuls corn starch mixed with very little cold water and ½ cupful boiling water. Cook until thick and spread while hot. Add vanilla.

Sponge or angel food cake should be started in a slow oven, increasing the heat gradually until browned, then decrease until done. For rolled cake 12 minutes should be sufficient baking if oven is right. Turn out the cake on a damp towel, have the jelly whipped until soft enough to spread quickly, as the filling must be ready and the work done rapidly or cake will cool and then crack in the rolling. If the edges have hardened they should be trimmed off before rolling the cake.

Mrs. J. F., Bridgeton, N. J.—When I take the time to get the heat of the oven just right for cake baking I never have a failure, but then sometimes I am in a hurry and get careless, to my sorrow.

Batter for layer cake does not want to be very stiff, and should be baked as quick as is possible without burning, while batter for sponge wants to be stiffer and baked very slowly.

When raisins or any kind of fruit are added to sponge cake make batter very stiff and add fruit last, when it will not fall to the bottom.

The receipt I use most is: 2 cupfuls of sugar, two-thirds cupful lard or butter, 3 eggs, 1 teaspoonful vanilla, 1½ cupfuls of milk, flour, 2 teaspoonfuls baking powder. When lard is used, put in cup and beat with knife until very creamy before adding to sugar, and you cannot tell it from butter in the cake. The amount of flour depends on what kind you use, as some kinds thicken more readily than others. I use this receipt for either a 3-layer cake or a sponge cake.

For icing, use 2 cupfuls sugar, 4 tablespoonfuls water; cook until it will spin a thread from a fork, then pour into a well beaten white of egg; then beat until it thickens. This can be used plain with any flavoring desired, or sprinkle cocoanut over it. Sliced bananas or oranges between layers are nice. Nut meats of any kind, or raisins, run through meat chopper and mixed with icing before spreading on cake are very good. I like agate baking pans best.

Mrs. C. J., State College, Pa.—To my mind the secret of successful cake baking lies in having just the proper amount of flour and shortening. Too much or too little of either will make an imperfect cake. No matter what receipt you use or how carefully you measure your ingredients you will have to exercise your judgment, for the different kinds of shortening materials give varying results, and they are also affected by temperature. Flours differ so much in stiffening quality that only experience can determine precisely how much is needed. Another important thing is the mixing or beating of the cake. I have never used a mechanical mixer, but I always beat my cake batter with spoon or batter whip until it is very light. If I fail to do this I find that my cake is not nearly so light. The third important thing is to have the oven at just the right temperature, hot enough that the cake will bake nicely yet not too hot at first; for in that case a crust will form on top be-

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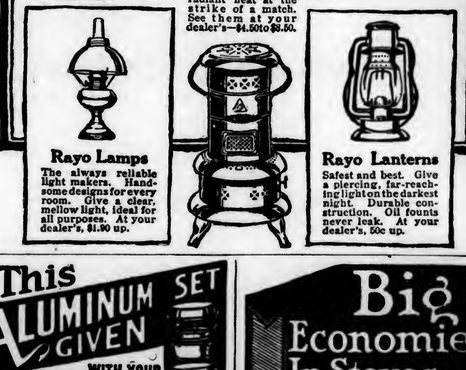

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fore the inner part has had time to bake.

I use a square tin cake pan, as a cake of this shape can be cut more economically than a round one. I have the pans with detachable bottoms, a feature which I like very much, as it enables one to take the cake from the pan as soon as it is removed from the oven, and thus does not give the cake the chance to "sweat," which always makes it clammy. I use the same type of pan for both my layer and loaf cake. Of course, the pan is deeper for the loaf cake than for the layer, but that is the only difference. Following is my favorite receipt: ½ cupful cocoa, 1 cupful sugar, ½ cupful cold water, ½ cupful flour, 1 teaspoonful baking powder, 3 eggs and a pinch of salt. Beat the whites of eggs separately, and very light. This is economical, delicious and most easily digested.

Mrs. H. P. W., Newark, Del.—The following receipt and way of making, is a cake I have never known to fail. I often make it for church affairs, and numerous persons have come to me for the receipt, as it always sells among the first: ¼ pound butter, 1¼ cupfuls sugar, beat until light; yolks of 4 eggs, beat again until creamy; ½ cupful milk, 2 cupfuls flour, 2 heaping teaspoonfuls baking powder and whites of eggs beaten stiff. Bake in three layers.

I use round cake tins, well greased and floured, with a little piece of tin running from the center of the cake tin over to the edge. It turns around under the cake to loosen it from the pan after baking. I use a wooden spoon and beat the cake until very light and prefer it to any other method.

Three things are necessary to successful cake baking. First, it must be beaten light before baking powder and whites of eggs are put in; only stirred gently after they are in. Second, use a good baking powder. Third, an oven of the right temperature.

Mrs. E. S., Norristown, Pa.—When baking a cake first read the receipt and then collect all the articles needed and have everything ready before mixing. I think it is not necessary to have a mechanical mixer. I use aluminum cake tins and they are excellent. A very good almond flavoring for cakes is to put a layer of peach leaves in the bottom of the cake pan and pour in the mixture.

If the receipt is followed closely, the following cake and icing are both delicious:

PILGRIM CAKE.—Melt ½ cupful grated chocolate and mix with it 1 cupful brown sugar and ½ cupful sweet milk. Let this get thoroughly mixed in a double boiler over boiling water, then set aside to cool. Beat together 1 cupful granulated sugar and ½ cupful butter (part lard), beat in 2 eggs, add ½ cupful sour milk in which 1 scant teaspoonful of soda has been dissolved, and add 2 cupfuls sifted flour. Flavor with vanilla. This makes two layers.

For icing, use 1 cupful granulated sugar, 5 tablespoonfuls boiling water. Boil until it spins a thread. Pour into the well beaten white of 1 egg. Flavor and beat until ready to spread. A lady took this cake, with some others, to the soldiers at Camp Meade a short time ago and it was considered the best of all.

Mrs. G. C., Penn Yan, N. Y.—One of the secrets of successful cake baking, in regard to layer cake, I have found to be a hot oven. If your oven is not hot enough when the cake is put in, it turns out tough and leathery. I have never used a mixer for cake, but have used a bread mixer with good success. In these days of conservation of food and food supplies, I do not serve my family much cake, depending more on puddings, such as rice, Indian, etc., and cookies, but will give a receipt for apple sauce cake which is very economical and can be substituted for molasses cake if your molasses jug happens to be empty on baking day: Dissolve 1 small teaspoonful of soda in 1 cupful of hot apple sauce, add a scant half cupful of shortening, 1 cupful of sugar, 1 teaspoonful each of cinnamon and cloves, 2 cupfuls flour and 1 or ½ cupful of raisins. The raisins may be omitted with good results.

Mrs. S. M. J., Kentwood, La.—One of my Christmas presents last year was a cake mixer. The container is of heavy glass in tumbler shape. The cover and mixer are of white metal. The latter whirls round and round as it moves up and down, and the way it beats is marvelous. Not only is it useful in cake making, but will do anything that can be done by ordinary beating, in less time, with less labor and with better results. Eggs, cream and salad dressings whip up as if by magic. If cream is scarce the amount that would be lost in a churn can be churned very quickly in the mixer. If one needs white, unsalted butter for cakes the amount can be put in the mixer with a cupful of warm milk or water, beaten a minute and it will be just right for mixing.

Nearly every housewife has some plain cake receipt as a standby—one which is easily made, not too expensive for every day, yet dainty enough for the chance guest; one, too, which can be made without consulting the receipt book This is mine:

CREAM SPONGE CAKE.—2 cupfuls each of flour and sugar, 1 cupful cream, 4 eggs, 1 heaping teaspoonful of baking powder or 1 level teaspoonful of soda, according to whether cream is sweet or sour. Flavoring to taste.

I break the eggs in mixer, add sugar, whip a minute, add cream and mix, then add the flour in which the soda or baking powder has been sifted, and the flavoring last. Mix well and bake in a loaf, or in layers and put together with jelly, cocoanut, chocolate or fruit, or in muffin or gem pans. It is nice eaten warm with whipped cream or fruit sauce.

What Our Farm Women Ask and Answer

Mrs. G. C., New York, would like to know of some new ideas for a Christmas celebration at the school house. Who will tell her a new way to delight the children?

Mrs. J. W. D., Virginia, asks us: "Will some one give new nourishing supper dishes—something outside of cook book receipts?"

"In my opinion," says Mrs. C. S. W., Pennsylvania, "the best way to stuff a turkey is to take several firm apples, according to the size of the bird, pare and cut them into thin slices, mix with about a cupful of seeded or seedless raisins and a tablespoonful of sugar. I fill the craw with this and use the regular bread filling for the body part. You will find this gives your turkey a delicious flavor if you have never tried it before."

In answer to the request made by Mrs. H. A. B., of Maryland, for a mince meat receipt, Miss L. M. W., N. Y., suggests the following green tomato mince meat: 1 peck of green tomatoes (put through a food chopper), cover with cold water and scald for one-half hour and drain; repeat this twice. Then add 4 lbs. of brown sugar, 1 lb. chopped citron, 1 lb. raisins, 1 lb. currants, 2 cupfuls chopped suet, 1 teaspoonful salt, 2 teaspoonfuls cinnamon, 1 teaspoonful of cloves, 1 cupful of vinegar. Cook until tender and seal in jar. Use for pies.

Mrs. E. G., Virginia, recommends this mince meat: 3 lbs. boiled beef, 1 lb. suet, 3 lbs. brown sugar, ½ peck apples, 2 lbs. raisins, 1½ lbs. currants, 1 lb. citron, 1 grated nutmeg, mace, allspice, cinnamon and cloves to suit taste. Chop and mix all ingredients, add enough sweet cider, sweet pickle syrup, canned fruit juices or a mixture of these and good strong coffee to make a thick batter and heat to boiling point to blend flavors.

CREOLE SWEET POTATO BISCUIT.—Boil and mash very fine enough sweet potatoes to make a quart. Add ½ teaspoonful of salt, 1 tablespoonful of sugar, 2 tablespoonfuls of fat and 1 cupful of milk heated to boiling point. Soften 1 yeast cake in 1 cupful of luke-warm milk which has been previously heated to boiling point and then add this gradually to 1 cupful of flour to form a sponge. Allow the sponge to rise and drop back. Then combine it with the potato and other material. Add 1 well beaten egg, 3 cupfuls of flour and mix thoroughly. Set to rise in a warm place. When light drop in biscuit from a tablespoon on a greased tin. Do not handle dough. Let biscuit rise until light and bake from 15 to 20 minutes.

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8517.—Girls' Empire coat. Cut in sizes 4 to 14 years. The collar may be rolled high or low and the skirt section is in three pieces.

8507.—Misses' dress. Cut in sizes 16, 18 and 20 years. The dress has a separate basque waist and a one-piece skirt.

8486.—Girl's dress. Cut in sizes 8 to 14 years. The dress consists of a waist, skirt and separate belt.

8484.—Ladies' waist. Cut in sizes 36 to 42 inches bust measure. Long or short sleeves may be used.

8490.—Ladies' apron. Cut in sizes 36, 40 and 44 inches bust measure. The apron is to be slipped on over the head.

8491.—Ladies' skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is a two-piece gathered model.

8481.—Girls' dress. Cut in sizes 4, 6, 8, 10 and 12 years. The dress is to be slipped on over the head.

8485.—Ladies' skirt. Cut in sizes 24 to 36 inches waist measure. The skirt is cut in three gores.

8487.—Ladies' house dress. Cut in sizes 36 to 44 inches bust measure. The sleeves may be long or short.

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Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

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Author of Eben Holden, D'ri and I, Darrel of the Blessed Isles, Keeping Up With Lizzie, etc.

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CHAPTER I.—Continued.

I was seven years old when Uncle Peabody gave me the watermelon seeds. I put one of them in my mouth and bit it.

"It appears to me there's an awful draft blowin' down your throat," said Uncle Peabody. "You ain't no business eatin' a melon seed."

"Why?" was the query.

"'Cause it was made to put in the ground. Didn't you know it was alive?"

"Alive!" I exclaimed.

"Alive," said he, "I'll show ye."

He put a number of the seeds in the ground and covered them, and said that that part of the garden should be mine. I watched it every day and by and by two vines came up. One sickened and died in dry weather. Uncle Peabody said that I must water the other every day. I did it faithfully and the vine throve.

"What makes it grow?" I asked.

"The same thing that makes you grow," said Uncle Peabody. "You can do lots of things but there's only one thing a watermelon can do. It can just grow. See how it reaches out toward the sunlight! If we was to pull them vines around and try to make 'em grow toward the north they wouldn't mind us. They'd creep back and go reachin' toward the sunlight ag'in just as if they had a compass to show 'em the way."

It was hard work, I thought, to go down into the garden, night and morning, with my little pail full of water, but uncle said that I should get my pay when the melon was ripe. I had also to keep the wood-box full and feed the chickens. They were odious tasks. When I asked Aunt Deel what I should get for doing them she answered quickly:

"Nospanks and bread and butter—ayes!"

When I asked what were "nospanks" she told me that they were part of the wages of a good child. I was better paid for my care of the watermelon vine, for its growth was measured with a string every day and kept me interested. One morning I found five blossoms on it. I picked one and carried it to Aunt Deel. Another I destroyed in the tragedy of catching a bumblebee which had crawled into its cup. In due time three small melons appeared. When they were as big as a baseball I picked two of them. One I tasted and threw away as I ran to the pump for relief. The other I hurled at a dog on my way to school.

So that last melon on the vine had my undivided affection. It grew in size and reputation, and soon I learned that a reputation is about the worst thing that a watermelon can acquire while it is on the vine. I invited everybody that came to the house to go and see my watermelon. They looked it over and said pleasant things about it. When I was a boy people used to treat children and watermelons with a like solicitude. Both were a subject for jests and both produced similar reactions in the human countenance."

Aunt Deel often applied the watermelon test to my forehead and discovered in me a capacity for noise which no melon could rival. That act became very familiar to me, for when my melon was nearing the summit of its fame and influence, all beholders thumped its rounded side with the middle finger of the right hand, and said that they guessed they'd steal it. I knew that this was some kind of a joke and a very idle one for they had also threatened to steal me and nothing had come of it.

At last Uncle Peabody agreed with me that it was about time to pick the melon. I decided to pick it immediately after meeting on Sunday, so that I could give it to my aunt and uncle at dinner-time. When we got home I ran for the garden. My feet and those of our friends and neighbors had literally worn a path to the melon. In eager haste I got my little wheelbarrow and ran with it to the end of that path. There I found nothing but broken vines! The melon had vanished. I ran back to the house almost overcome by a feeling of alarm, for I had thought long of that hour of pride when I should bring the melon and present it to my aunt and uncle.

"Uncle Peabody," I shouted, "my melon is gone."

"Well I van!" said he, "somebody must 'a stole it."

"Stole it?" I repeated the words without fully comprehending what they meant.

"But it was my melon," I said with a trembling voice.

"Yes and I vum it's too bad! But, Bart, you ain't learned yit that there are wicked people in the world who come and take what don't belong to 'em."

There were tears in my eyes when I asked:

"They'll bring it back, won't they?"

"Never!" said Uncle Peabody, "I'm afraid they've et it up."

He had no sooner said it than a cry broke from my lips, and I sank down upon the grass moaning and sobbing. I lay amidst the ruins of the simple faith of childhood. It was as if the world and all its joys had come to an end.

"You can't blame the boy," I heard Uncle Peabody saying. "He's fussed with that melon all summer. He wanted to give it to you for a present."

"Ayes so he did! Well I declare! I never thought o' that—ayes!"

Aunt Deel spoke in a low, kindly tone and came and lifted me to my feet very tenderly.

"Come, Bart, don't feel so about that old melon," said she "it ain't worth it. Come with me. I'm goin' to give you a present—ayes I be!"

I was still crying when she took me to her trunk, and offered the grateful assuagement of candy and a belt, all embroidered with blue and white beads.

"Now you see, Bart, how low and mean anybody is that takes what don't belong to 'em—ayes! They're snakes! Everybody hates 'em an' stamps on 'em when they come in sight—ayes!"

The abomination of the Lord was in her look and manner. How it shook my soul! He who had taken the watermelon had also taken from me something I was never to have again, and a very wonderful thing it was—faith in the goodness of men. My eyes had seen evil. The world had committed its first offense against me and my spirit was no longer the white and beautiful thing it had been. Still, therein is the beginning of wisdom and, looking down the long vista of years, I thank God for the great harvest of the lost watermelon. Better things had come in its place—understanding and what more, often I have vainly tried to estimate. For one thing that sudden revelation of the heart of childhood had lifted my aunt's out of the cold storage of a puritanic spirit, and warmed it into new life and opened its door for me.

In the afternoon she sent me over to Wills' to borrow a little tea. I stopped for a few minutes to play with Henry Wills—a boy not quite a year older than I. While playing there I discovered a piece of the rind of my melon in the dooryard. On that piece of rind I saw the cross which I had made one day with my thumb-nail. It was intended to indicate that the melon was solely and wholly mine. I felt a flush of anger.

"I hate you," I said as I approached him.

"I hate you," he answered.

"You're a snake!" I said.

We now stood, face to face and breast to breast, like a pair of young roosters. He gave me a shove and told me to go home. I gave him a shove and told him I wouldn't. I pushed up close to him again and we glared into each other's eyes.

Suddenly he spat in my face. I gave him a scratch on the forehead with my finger-nails. Then we fell upon each other and rolled on the ground and hit and scratched with feline ferocity.

Mrs. Wills ran out of the house and parted us. Our blood was hot, and leaking through the skin of our faces a little.

"He pitched on me," Henry explained. I couldn't speak.

"Go right home—this minute—you brat!" said Mrs. Wills in anger. "Here's your tea. Don't you ever come here again."

I took the tea and started down the road weeping. What a bitter day that was for me! I dreaded to face my aunt and uncle. Coming through the grove down by our gate I met Uncle Peabody. With the keen eyesight of the father of the prodigal son he had seen me coming "a long way off" and shouted:

"Well here ye be—I was kind o' worried, Bub."

Then his eye caught the look of dejection in my gait and figure. He hurried toward me. He stopped as I came sobbing to his feet.

"Why, what's the matter?" he asked gently, as he took the tea cup from my hand, and sat down upon his heels.

I could only fall into his arms and express myself in the grief of childhood. He hugged me close and begged me to tell him what was the matter.

"That Wills boy stole my melon," I said, and the words came slow with sobs.

"Oh, no he didn't," said Uncle Peabody.

"Yes he did. I saw a piece o' the rin'."

"Well by—" said Uncle Peabody, stopping, as usual, at the edge of the precipice.

"He's a snake," I added.

"And you fit and he scratched you up that way?"

"I scratched him, too."

"Don't you say a word about it to Aunt Deel. Don't ever speak o' that miserable melon ag'in to anybody. You scoot around to the barn, an' I'll be there in a minute to fix ye up."

He went by the road with the tea and I ran around to the lane and up to the stable. Uncle Peabody met me there in a moment and brought a pail of water and washed my face so that I felt and looked more respectable.

"If Aunt Deel asks ye about them scratches you just tell her that you and Hen had a little disagreement," said my uncle.

She didn't ask me, probably because Uncle Peabody had explained in his own way, and requested her to say nothing.

The worst was over for that day but the Baynes-Wills feud had begun. It led to many a fight in the school yard and on the way home. We were so evenly matched that our quarrel went on for a long time and gathered intensity as it continued.

One day Uncle Peabody had given me an egg and said that there was a chicken in it.

"All ye have to do is to keep it warm an' the chicken will come to life, and when the hen is off the nest some day it will see light through the shell and peck its way out," he explained.

He marked my initials on the egg and put it under a hen and by and by a little chicken came out of the shell. I held it in my palm—a quivering, warm, handful of yellow down. Its helplessness appealed to me and I fed and watched it

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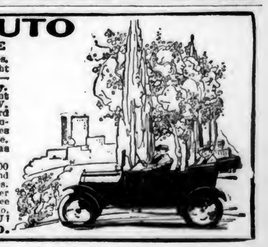

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FARM LIFE, Dept. 111 SPENCER, IND.

every day. Later my uncle told me that it was a hen chick and would be laying eggs in four months. He added:

"It's the only thing it can do, an' if it's let alone it'll be sure to do it. Follows a kind of compass that leads to the nest every time."

This chicken grew into a little spotted hen. She became my sole companion in many a lonely hour when Uncle Peabody had gone to the village, or was working in wet ground, or on the hay rack, or the mowing machine where I couldn't be with him. She was an amiable, confiding little hen who put her trust in me and kept it unto the day of her death, which came not until she had reached the full dignity of mature henhood.

She was like many things on the farm—of great but unconsidered beauty. No far-fetched pheasant was half so beautiful as she. I had always treated her with respect, and she would let me come and sit beside her while she rolled in the dust and permit me to stroke her head and examine her wonderful dress of glossy mottled satin. She would spread her glowing sleeves in the sunlight, and let me feel their downy lining with my fingers and see how their taut, snug-fitting plumes were set.

I remember a day when she was sitting on her nest with that curious expression in her eyes which seemed to say: "Please don't bother me now for this is my busy time." I brought three little kittens from their basket in the wood-shed and put them under her. The kittens felt the warmth of her body and began to mew and stir about. I shall never forget the look of astonishment in the little hen as she slowly rose in her nest and peered beneath her body at the kittens. She looked at me as if to say that she really couldn't be bothered with those furry things any longer—they made her so nervous. She calmly took hold of one of them with her bill and lifted it out of the nest. She continued this process of eviction until they were all removed, when she quietly sat down again.

I mention this only to show that the hen and I had come to terms of intimacy and mutual understanding. So when I saw Wills' dog catch and kill her in the field one day, where she was hunting for grasshoppers, I naturally entertained a feeling of resentment. I heard the cries of the hen and ran through the orchard and witnessed the end of the tragedy and more. Away down in the meadow I saw the dog and farther away "the Wills boy," as we then called him, running toward his home. The dog had run away as I approached and when I picked up the lifeless body of my little friend the hills seemed to lift up their heads and fall upon me. Of course that Wills boy had set the dog on her. I shall write no more of that hour of trial. Such little things make history, and it is necessary that the reader should understand me.

One June day of the next summer Uncle Peabody and I, from down in the fields, saw a fine carriage drive in at our gate. He stopped and looked intently.

"Jerusalem four-corners!" he exclaimed. "It's Mr. and Mrs. Horace Dunkelberg."

My heart beat fast at thought of the legendary Dunkelbergs. Uncle looked me over from top to toe. "Heavens!" he exclaimed. "Go down to the brook and wash the mud off yer feet an' legs."

I ran for the brook and before I had returned to my uncle I heard the horn blow.

"The Dunkelbergs!—the Dunkelbergs! Come quick!" it seemed to say.

Uncle had tied a red handkerchief around his neck and was readjusting his galluses when I returned. In silence we hurried to the house. As we drew near I heard the voice of Mrs. Horace Dunkelberg and that of another woman quite as strange to my ear—a high-pitched voice of melting amiability. It was the company voice of my Aunt Deel. I had observed just a faint suggestion of it when the neighbors came, or when meeting was over, but I had never before heard the full-fledged angelicity of her company voice. It astonished me and I began to regard her as a very promising old lady. Uncle Peabody, himself, had undergone a change in the presence of the Dunkelbergs. He held his neck straighter and smiled more and spoke with greater deliberation.

Mr. Dunkelberg was a big, broad-shouldered, solemn-looking man. Somehow his face reminded me of a lion's which I had seen in one of my picture-books. He had a thick, long, outstanding mustache and side whiskers, and deep-set eyes and heavy eye-brows. He stood for half a moment looking down at me from a great height with his right hand in his pocket. I heard a little jingle of coins down where his hand was. It excited my curiosity. He took a step toward me and I retreated. I feared, a little, this big, lion-like man. My fears left me suddenly when he spoke in a small squeaky voice that reminded me of the chirping of a bird.

"Little boy, come here and I will make you a present," said he.

It reminded me of my disappointment when uncle tried to shoot his gun at a squirrel and only the cap cracked.

I went to him and he laid a silver piece in the palm of my hand. Aunt Deel began to hurry about getting dinner ready while Uncle Peabody and I sat down on the porch with our guests, among whom was a pretty blue-eyed girl of about my own age, with long, golden-brown hair that hung in curls.

"Sally, this is Barton Baynes—can't you shake hands with him?" said Mrs. Dunkelberg.

With a smile the girl came and offered me her hand and made a funny bow and said that she was glad to see me. I took her hand awkwardly and made no reply. I had never seen many girls and had no very high opinion of them.

My attentive ears and eyes began to gather facts in the history of the Dunkelbergs. Mr. Dunkelberg had throat trouble, and bought butter and cheese and sent it to Boston, and had busted his voice singing tenor, and was very rich. I knew that he was rich because he had a gold watch and chain, and clothes as soft and clean as the butternut trousers, and a silver ring on his finger, and such a big round stomach. That stomach was the most convincing feature of all and, indeed, I have since learned that the rounded type of human architecture is apt to be more expensive than the angular.

As we sat there I heard the men talking about the great Silas Wright, who had just returned to his home in Canton. He had not entered my consciousness until then.

While I sat listening I felt a tweak of my hair, and looking around I saw the Dunkelberg girl standing behind me with a saucy smile on her face.

"Won't you come and play with me?" she asked.

I took her out in the garden to show her where my watermelon had lain. At the moment I couldn't think of anything else to show her. As we walked along I observed that her feet were in dainty shiny button-shoes. Suddenly I began to be ashamed of my feet that were browned by the sunlight and scratched by the briers. The absent watermelon didn't seem to interest her.

"Let's play house in the grove," said she, and showed me how to build a house by laying rows of stones with an opening for a door.

"Now you be my husband," said she.

Oddly enough I had heard of husbands but had only a shadowy notion of what they were. I knew that there was none in our house.

"What's that?" I asked.

She laughed and answered: "Somebody that a girl is married to."

"You mean a father?"

"Yes."

"Once I had a father," I boasted.

"Well, we'll play we're married and that you have just got home from a journey. You go out in the woods and then you come home and I'll meet you at the door.

I did as she bade me but I was not glad enough to see her.

"You must kiss me," she prompted in a whisper.

I kissed her very swiftly and gingerly—like one picking up a hot coal—and she caught me in her arms and kissed me three times while her soft hair threw its golden veil over our faces.

"Oh I'm so glad to see you," she said as she drew away from me and shook back her hair.

"Golly! this is fun!" I said.

"Ask: 'How are the babies?'" she whispered.

"How are the babies?" I asked, feeling rather silly.

"They're fine. I'm just putting them to bed."

We sat on the grass and she had a stick which she pretended to be dressing and often, after she had spanked the stick a little, she made a noise through closed lips like that of a child crying.

"Now go to sleep and I'll tell you a story," said she.

Then she told pretty tales of fairies

(Continued on page 399)

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The Practical Farmer Live Stock and Dairy Section

Cheese Making on the Farm

H. H. DEAN

It is a common impression that cheese can be made in factories only, and that it necessarily requires expensive machinery. This is not the case. Cheese can be made with very few utensils other than those found ordinarily on a farm.

FARM CHEDDAR.

The main difference in methods of manufacturing farm cheddar cheese, as compared with the factory variety of the same name, is that smaller quantities of milk are used, simpler methods and utensils are needed, and the time of making is shortened to about four hours instead of six to eight hours.

For a cheese weighing about 10 pounds use 100 pounds, or 10 gallons, of average quality milk, which is sweet and of good flavor. Heat this in a clean, bright wash boiler on the kitchen stove, or by setting it into a can of hot water, to a temperature of 86 degrees F., using a reliable dairy thermometer for the purpose and stirring frequently so that all parts of the milk are properly heated. Remove from the heat and add from four to six teaspoonfuls of rennet diluted in a cupful of cold water, stirring the rennet thoroughly through the milk with a long-handled spoon or dipper for about three minutes; then allow the milk to set at perfect rest until it has thickened. This can be tested by inserting the thermometer in a slanting direction, and when the coagulated milk breaks clean over the thermometer it is ready to cut with a curd knife, or a long-bladed knife which will reach to the bottom of the vessel. Cut as evenly as possible into cubes about one-half inch in size. Next heat the whole mass slowly to 98 degrees F., taking about one-half hour to warm from 86 degrees to 98 degrees, stirring all the while. Continue stirring at intervals for about 2½ hours, at which time the curd should feel firm, or be what is called "cooked." Then dip the curd from the whey on to a piece of cheese cloth spread on a slanting table or a butterworker and allow the surplus whey to drain. Stir frequently for 15 to 20 minutes, then mix salt with the curd at the rate of about one-quarter of a pound of salt for the curd from 10 gallons of milk—this to be varied according to taste.

In about 10 or 15 minutes the salt will have dissolved and it is ready to place in a hoop for pressing. This hoop should be made of heavy tin or light steel properly galvanized, and be about 6 to 8 inches in diameter and 10 to 12 inches high, having a wooden or metal circle which fits inside the hoop, so that it will follow the curd downward as it is pressed into shape in the hoop.

To press the cheese, scald and cleanse the hoop; next place a square piece of clean cotton cloth on top of the hoop if using a filler; if not, then place the cloth on a clean board, then the hoop on the cloth and fill the curd directly into the hoop, pressing it down firmly; when the hoop is full, spread another piece of cotton over the curd, place on the circle or "follower" and apply pressure by means of a weight directly on the follower, by a lever with a weight on the end, or by means of a regular cheese press. Sometimes a jack screw is available for pressing the cheese. Any handy person can contrive some sort of a press. A fence rail or a scantling, having a pail of stones for weight which is moved outward to increase the pressure, is a crude but effective home-made press.

After pressing for about an hour take the cheese out of the press, trim the edges and adjust in the hoop so as to have as neat looking cheese as possible. Apply heavier pressure for about 24 hours, when the cheese should be removed from the hoop and be bandaged with cheese cotton, if this has not been done at the time of pressing. A strip of cotton wrapped neatly about the cheese makes a satisfactory bandage. Small circular pieces of cotton may also be placed over each end of the cheese. Now place in a cool, clean place, such as a cellar, turn every day for a week, then dip in, or coat with, hot paraffine wax to prevent drying. In from one to three months this cheese should be properly ripened or cured, and fit for table use. When cutting, slice a thin circle from one end, and always place this back on the cheese after cutting the necessary circle or circles of cheese for a meal. Never cut chunks out of a small cheese. Other varieties of cheese are also suitable for farm manufacture.

NEUFCHATEL CREAM CHEESE.

This is made from whole milk or whole milk with cream added to bring the test up to between 4 and 5 per cent. fat. In the morning pasteurize the milk by heating to a temperature of from 140 to 150 degrees F., and hold it at that temperature for 20 minutes, then cool to 70 degrees F. To each 10 pounds of milk add one-half teaspoonful of sour milk, or culture. Late in the afternoon add the rennet at the rate of five or six drops of rennet to each 10 pounds of milk. If the milk has cooled, bring it to a temperature of 70 degrees F. Dilute the rennet with cold water, and add it to the milk, stirring for a few minutes to insure even distribution. Cover the vessel containing the milk and leave undisturbed until next morning. In the morning the curd should be firmly coagulated. Cut the curd in squares with a knife, then ladle it out on a rack cov-

(Concluded on page 398)

Getting a Start in Sheep

J. HUGH McKENNEY

Notwithstanding the fact that sheep breeding as an industry has declined in recent years, still the farmer has not lacked for advice to re-enter the business. It may be that the present high price of mutton and wool will be more effectual in this respect, if he does not lose his head and go at it too extensively.

At the outset, he should have a clearly defined plan of what he expects to accomplish as a breeder. That is, he must know his market and be prepared to cater to it in the selection and breeding of his flock. This will depend very largely on local conditions. For instance, mutton is pre-eminently adapted to grain growing districts, while on grazing land, too much broken for cultivation, one of the wool-producing breeds will fit in well. Should all the breeders of a locality pursue some such system at the beginning of operations, all would probably reach very much the same conclusions in the matter of choice. This, naturally, would lead to continuity and uniformity that would ultimately mean better prices for sheep and their products.

Start now for scenes like this next spring

The best time to purchase the foundation ewes is in the fall; and the best place to make the purchase is in the district where they are to be kept. Going afield, and attempting to get a start by purchasing ewes on the large markets may prove a costly experiment. Such animals are usually discards because of age or failure to breed. Locally bred ewes will give more satisfactory results because of having become adapted to climatic conditions and parasitic dangers. Then, too, when the prospective breeder secures his flock in the early fall, he has an opportunity to become familiar with it before winter; can see to the mating and knows exactly when to expect his lambs. In the matter of selection, careful attention should be paid to the individual animal if uniformity is to be established and maintained. For instance, the state of each animal's teeth should be noted, as a toothless ewe, even though she breeds, is bound to give trouble at lambing time. Also inspect the udder and teats, for if these are impaired the lambs cannot be expected to thrive. A strong sheep of good feeding capacity is indicated by a moderately heavy fleece and is an important factor in making the sheep venture a financial success.

When it is desired to have the lambs dropped in February and March the breeding season should extend over the months of September and October. At latest, the mating should be done before Christmas, as the lambs dropped after the middle of May are not likely to thrive without much extra care. The common method of letting the ram run with the flock during the breeding season is not considered by expert sheepmen as good practice. There is a lack of certainty regarding the lambing date, as well as the time of service. When left to himself the ram may serve too many ewes during a single day, several of which may fail to be effective. A better plan is to allow him with the ewes only for a time each morning. He will then single out those ready to be mated. One service is sufficient. The ewe should then be placed in a quiet pen for a day or two. Four ewes during a single morning is all a ram should be allowed to serve. If more are ready the mating of them should be delayed until evening. As a matter of record, all ewes served during one week should be marked with a certain color on the back, those mated the next week with another color, and so on throughout the breeding season.

Points on Feeding Dairy Cows

With no relief from the high price of feeds in sight the wise dairyman will make every preparation possible to keep his cows warm this winter. The dairy cow is very thinly clad as compared to the beef animal with its heavy covering of fat. If she is not furnished with a warm barn in cold weather she will warm herself in the way provided by nature, by burning up the tissues of her body.

Unless these tissues are replaced the cow will drop off in her milk flow. It is highly important that the milk flow be kept up, for if allowed to fall off the original flow cannot be fully regained until the cow calves again. This is especially true for cows that have been milking for three months or more.

Expensive feed is necessary to replace the tissues broken down by the cow in order to warm her body. We would not think of burning corn worth $80 a ton in our stoves because it would be an expensive fuel. It is cheaper to furnish a cow with a warm barn than to force her to keep herself warm by the use of expensive feeds.

The dairy department of the New Jersey Agricultural Experiment Station advises that feed can be saved also by warming the water for the cows. A cow giving 12 quarts of milk a day will drink 36 quarts of water. It will require 1 pound of corn worth approximately 4 cents to warm this water from freezing to body temperature. For a large herd the water can be heated much cheaper by burning waste wood in a tank heater. The cow will drink more warm water than cold and will not suffer the shock that comes from taking a large volume of cold water.

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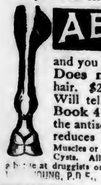

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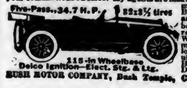

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In the first test silage was offered twice daily to both groups and one group received hay in addition. When hay was fed in addition to silage the cows consumed 45 pounds of silage per cow daily. In addition, one group consumed 5 pounds of hay.

During the second test, silage was fed to one group three times a day. The other group received silage twice and hay once a day. In this test the group receiving silage alone consumed 52 pounds of silage, while the group receiving an average of 6 pounds of mixed hay consumed 36 pounds of silage a day.

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Although it appeared that silage alone could be fed for a short period without detrimental effect upon the health of the cow, and without serious decrease in milk flow, there is an advantage in supplementing the silage with hay.

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Cheese Making

(Concluded from page 397)

ered with cheese cloth. When the free whey has drained away, apply pressure very lightly at first and increase the pressure as the curd becomes firmer.

When sufficiently drained, put the curd through the meat grinder to break it up finely and make it more creamy. Add the salt at the rate of 1 ounce to 3 pounds cheese and mix thoroughly. When the salt is dissolved the cheese is ready to be put up in packages suitable for the market.

COTTAGE CHEESE WITH RENNET.

This cheese is made from skim milk. The method outlined for neufchatel cream cheese is followed, but a small amount of cream is added at the time of salting, usually about 1 ounce of cream to a pound of cheese. Salt at the rate of 1 ounce to 4 or 5 pounds of cheese.

COTTAGE CHEESE BY HEATING.

Pasteurize skim milk then cool to 60 or 65 degrees F., and add from 1 to 2 ounces of culture to each 100 pounds of skimmilk. Next morning the curd will be nicely coagulated and ready to make into cottage cheese. Stir the curd to break it up, then place the can of milk in a vessel containing hot water. Stir gently until the curd and whey separate. This usually takes place between 85 and 100 degrees F. If the separation is not complete at 100 degrees F., do not heat higher, but allow the cans to stand until the whey is clear. High temperatures give a dry, grainy curd.

Drain the curd by hanging it up in cotton bags or putting it on a draining rack covered with cheese cloth. When sufficiently drained, salt and cream are added as in "cottage cheese with rennet."

BUTTERMILK CHEESE.

Heat the buttermilk to 130 or 140 degrees F. Allow to stand from one-half to one hour, then hang up in a cotton bag to drain, or place on a rack covered with cheese cloth. When sufficiently drained, salt at the rate of 1 ounce to 4 or 5 pounds of cheese. The addition of a small amount of cream is an improvement.

Why and How to Dehorn Cattle

Dehorned cattle ordinarily bring about 25 cents per 100 pounds more on the market than horned cattle. Dehorning may be done as soon as flies have disappeared and before the weather becomes too cold. Dr. I. D. Wilson, of the Pennsylvania State College, warns against the all-too-common practice of dehorning cattle in the spring. Cattle which are slow in recovering from spring dehorning will be attacked by flies later in the season.

The best time to dehorn calves is when they are three or four weeks old. At this age dehorning may be done at almost any season. Dehorned cattle are more congenial in the feed lot, injure each other less and hence make better gains.

To dehorn, tie the animal securely in stanchions. Clippers or a saw may be used. While the dehorning operation is more quickly accomplished with clippers, a greater loss of blood results than when a saw is used. In case hemorrhage continues longer than an hour, saturate a piece of cotton with tincture of chloride or iron and bandage it over the wound.

Another method recommended is to tie a strong cord tightly around the base of the horns before the operation. No after treatment is necessary provided the operation is performed at the proper season.

What to Feed in Place of Corn

Ways to reduce the amount of corn fed to hogs by substituting other feeds are especially desirable with high priced corn and its increased need for human consumption. There are many feedstuffs which can be substituted for corn. Their use will be determined largely by their availability, relative feeding value, and cost per pound as compared with corn. Hog feeders, by getting in touch with the feed manufacturing industries in their section, may discover profitable substitutes for corn. Feeds unavailable for human consumption should be used as far as possible.

A number of substitutes for corn with suggestions for their use are given by the U. S. Dept. of Agriculture. The feeding value, methods of feeding, and the highest relative cost of a pound of each feed to a pound of corn at which profitable substitution can occur are given for each feed. For example: A pound of feed with a feeding value four-fifths that of corn must cost at least one-fifth less before substitution is profitable purely from a monetary standpoint.

Oats, after crushing, have three-fifths the feeding value of corn. They can be substituted profitably for corn, therefore, when a pound of crushed oats costs two-fifths less than a pound of corn. In a fattening ration, oats should not compose more than two-thirds of the ration during the early part of the feeding period and should gradually be reduced until, during the last four or five weeks, they are entirely omitted from the ration. Oats are excellent for adding bulk to a ration and are especially good for brood sows.

Barley, when crushed, is an excellent feed for swine and can be substituted entirely for corn, even when it costs the same per pound.

Rye, when costing nine-tenths as much as corn per pound, can be substituted for corn in the ration. It should be fed ground or crushed and is best fed as a slop.

Buckwheat can be substituted for corn when it costs one-tenth less per pound. It should be fed ground and is best as a partial substitute, for it tends to produce a poor quality of fat.

Cull beans can be substituted for corn if below the cost of corn. Beans make soft pork and always should be cooked and salted before feeding. It is better to substitute the beans for but one-half the corn, and so prevent soft pork and increase the gains.

Wheat shorts or middlings are a by-product of the milling of wheat. While a feed high in protein, it can be substituted for corn when one and one-tenth the cost of corn. It is best as a nitrogenous supplemental feed and when forming but a part of the ration. Owing to its heavy, pasty nature, if fed alone for a long while digestive troubles are liable to occur. No protein supplement is necessary for a ration of shorts, though lime, in which shorts are low, should be supplied.

Let Hogs Eat the Soft Corn

Even under the average weather conditions there is likely to be a considerable amount of corn which will not be sufficiently matured to escape frost. This corn, while containing too much moisture for permanent storage, has practically the same feeding value as well matured corn on a dry weight basis. Where soft or frosted corn is to be fed to hogs, the New Jersey Agricultural Experiment Station advises that the following precautions be kept in mind.

First, the soft corn should be fed during the early stages of the fattening period, as it is relatively low in starch and therefore not so well adapted to the finishing period as a more thoroughly matured grain.

Second, soft or frosted corn may contain as much as 35 to 40 per cent. of moisture and is likely to shrink considerably and to spoil if stored for any great length of time. Usually if stored in well ventilated cribs, no fermentation will take place during cold weather.

The pig appears to be the logical animal for converting the soft corn into food for human consumption, since the bother of shelling or grinding is eliminated. Soft corn should be supplemented with tankage or other protein feeds the same as any other corn.

The International Live Stock Exposition, which this year will be held in Chicago, from December 1st to 8th, has been designated by Food Commissioner Hoover, a "food training camp." This means that during the duration of the war, the International will be in the service of the United States, and being such, every one who possibly can should feel it his or her patriotic duty to count a visit to the show among one of the "bits" that they are doing to "help win the war." This exposition has always stood for more and better live stock, and this year should prove to be a "banner" year.

The Light in the Clearing

(Continued from page 376)

and of grand ladies and noble gentlemen who wore gold coats and swords and diamonds and silks, and said wonderful words in such a wonderful way. I dare say it prospered all the better in my ears because of the mystery by which its meanings were partly hidden. I had many questions to ask and she told me what were fairies and silks and diamonds and grand ladies and noble gentlemen.

We sat down to one of our familiar dinners of salt pork and milk gravy and apple pie now enriched by sweet pickles and preserves and frosted cake.

A query had entered my mind and soon after we began eating I asked:

"Aunt Deel, what is the difference between a boy and a girl?"

There was a little silence in which my aunt drew in her breath and exclaimed, "W'y!" and turned very red and covered her face with her napkin. Uncle Peabody laughed so loudly that the chickens began to cackle. Mr. and Mrs. Dunkelberg also covered their faces. Aunt Deel rose and went to the stove and shoved the teapot along, exclaiming: "Goodness gracious, sakes alive!"

The teapot slopped over on the stove. Uncle Peabody laughed louder and Mr. Dunkelberg's face was purple. Shep came running into the house just as I ran out of it. I had made up my mind that I had done something worse than tipping over a what-not. Thoroughly frightened I fled and took refuge behind the ash-house, where Sally found me. I knew of one thing I would never do again. She coaxed me into the grove where we had another play spell.

I needed just that kind of thing, and what a time it was for me! A pleasant sadness comes when I think of that day—it was so long ago. As the Dunkelbergs left us I stood looking down the road on which they were disappearing and saw in the sky and the distant, purple hills and sloping meadows the beauty of the world. The roaring aeroplane of a humming bird whirled about me and sped through the hollyhock towers. I followed and watched the tiny air-ship sticking its prow in their tops, as if it would have me see how wonderful they were, before it sped away. Breast deep in the flowers I forgot my loneliness for a few minutes. But that evening my ears caught a note of sadness in the voice of the katydids, and memory began to play its part with me. Best of all I remembered the kisses and bright blue eyes and the soft curly hair with the smell of roses in it.

(Continued next issue.)

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We sat down to one of our familiar dinners of salt pork and milk gravy and apple pie now enriched by sweet pickles and preserves and frosted cake.

A query had entered my mind and soon after we began eating I asked:

"Aunt Deel, what is the difference between a boy and a girl?"

There was a little silence in which my aunt drew in her breath and exclaimed, "W'y!" and turned very red and covered her face with her napkin. Uncle Peabody laughed so loudly that the chickens began to cackle. Mr. and Mrs. Dunkelberg also covered their faces. Aunt Deel rose and went to the stove and shoved the teapot along, exclaiming: "Goodness gracious, sakes alive!"

The teapot slopped over on the stove. Uncle Peabody laughed louder and Mr. Dunkelberg's face was purple. Shep came running into the house just as I ran out of it. I had made up my mind that I had done something worse than tipping over a what-not. Thoroughly frightened I fled and took refuge behind the ash-house, where Sally found me. I knew of one thing I would never do again. She coaxed me into the grove where we had another play spell.

I needed just that kind of thing, and what a time it was for me! A pleasant sadness comes when I think of that day—it was so long ago. As the Dunkelbergs left us I stood looking down the road on which they were disappearing and saw in the sky and the distant, purple hills and sloping meadows the beauty of the world. The roaring aeroplane of a humming bird whirled about me and sped through the hollyhock towers. I followed and watched the tiny air-ship sticking its prow in their tops, as if it would have me see how wonderful they were, before it sped away. Breast deep in the flowers I forgot my loneliness for a few minutes. But that evening my ears caught a note of sadness in the voice of the katydids, and memory began to play its part with me. Best of all I remembered the kisses and bright blue eyes and the soft curly hair with the smell of roses in it.

(Continued next issue.)

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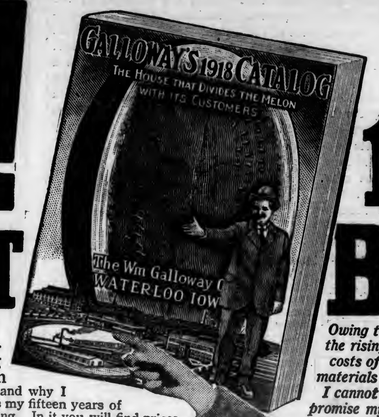

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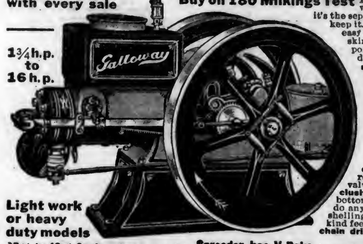

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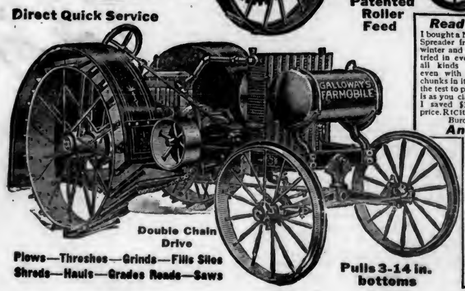

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The Relation of the Dairy Cow to Profitable Dairying

W MILTON KELLY

PROBABLY you are a better farmer than the average, or if not, you want to keep up the fertility of your farm. Whichever you are, if you have ideas about the growing of crops, about feeding live stock and about the other things connected with profitable farming, I will lay ten to one that, on snap judgment, you will say that dairy farming is a pretty hard and confining occupation. In this you are more or less wrong. I am a dairy farmer, and I am putting it straight when I say that hard work isn't one, two, three with the real problems of the game.

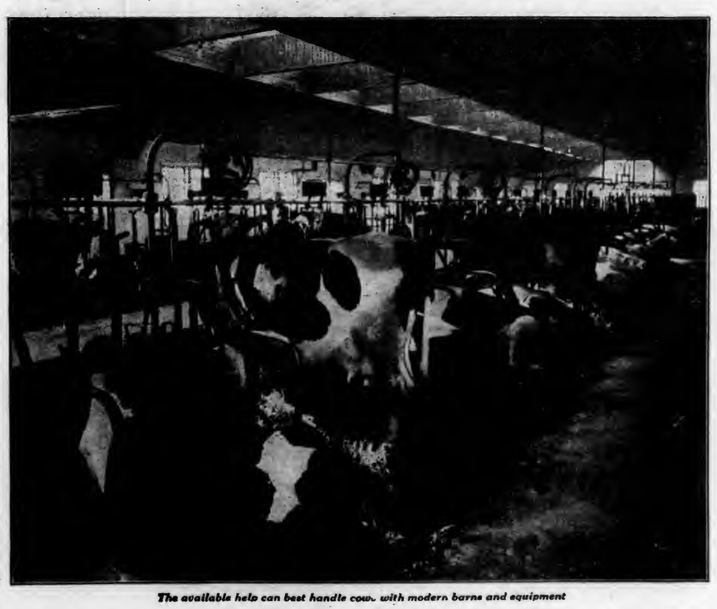
Dairying is becoming more complex every year and the man with all muscle and no brains cannot keep in step with the times. Plenty of gray matter is what is needed. It is true that a willingness to work and put in long hours is a requisite to a successful dairyman's make-up, but this is not what worries him. Rather the dairyman's troubles today are the little things which are not on the schedule.

The day of the husky man in blue overalls and milk-stained boots is past. Years ago a dairy farmer's standing in his community was determined largely by the amount of milk on his boots. If he had a lot of the overflow on his boots it showed that his cows gave more milk than his pail would hold and helped his credit at the local bank. Today the successful dairyman wears clean clothes while caring for his cows and milking them. Brains have come to be mightier than brute force. The men who are making dairy farming a success are the thinkers, not the careless workers.

The greatest question before the dairy farmer today is that of growing suitable food crops for the cows and their reciprocal effect upon the fertility of his farm. How much milk each acre can be made to produce is as great a dairy problem as how much milk each cow can be made to give. The blighting effect of the feed bills and the waning fertility of thousands of dairy farms is convincing proof that many dairymen are buying too much and growing too little, both of feeds and fertility. This is no new subject, yet I hope to give some old facts in a different way from what you have usually viewed them. I want to show, as well as I can, how some of these matters in relation to the question of feeds and fertility present themselves to me and how I worked them out on my farm. It is not my aim to discourage the feeding of supplemental feeds if a man has cows that can consume them and pay for them and return to him in the value of the manure, 60 per cent. of the original cost of the feed. My word is more of a caution against buying feeds that can be grown cheaper than they can be bought in the market. Some of these crops should be grown on the farm, not alone for the improvement of the ration, but for the land's sake.

Theoretically, the purchase and feeding of large quantities of these feeds of commerce will increase the fertility of the farm; they bring more fertility to the farm from other lands than is taken off by the sale of dairy products. The man figures that he is safe as long as he is buying more fertilizer than he is selling. Added to this preachment of the case is the fact that many half-baked dairy instructors have figured it out (on paper) that the only loss of soil fertility from the dairy farm is crystallized sunshine (butter), and consequently a man is safe as long as he keeps cows and buys the feed from other lands. All of these arguments sound plausible to the man who made only a superficial study of the soil fertility problem; however, in his actual farm practice he soon discovers that if he neglects to grow fertilizing and renovating crops and relies upon the manure heap to maintain the fertility of his soil, his acreage of productive land grows smaller year by year. The supply of manure from his cows, as compared with the size of his farm, seldom reaches beyond a few acres about the stables, and while a few acres "hold their own," the many suffer for the few. This removal of fertility from the pastures and far ends of the farm makes a gradual decrease in the size of the productive area until only a few acres of land are utilized for profitable crop growing.

On my farm I have met this problem by giving potatoes a year in the rotation and buying commercial plant food to help out this crop. In this way the growing of proteinaceous forage and fodder crops as a source of protein (the only element a dairyman has a valid excuse for buying), helps out the potato crop and adds to the supply of fertility within reach of the feed crops grown for the cows. It also distributes the labor and fertility over the whole farm and not on a few acres about the barns. I believe, and I can say with a fair amount of experience, that the time has come when every acre of tillable land should be made to produce something that will add to the net income of the farm. The man who grows only what roughage his cows consume, and that of the poorer sorts, and depends upon his monthly milk checks to pay his feed bills is traveling in a circle so small that he is in danger of tripping himself up. If one has a profitable cash crop that is adapted to his farm and rotation of crops he can depend upon the sale of that crop to pay for his feed and fertilizer. On the Eastern farm, in close proximity to suitable markets, I believe this practice is preferable to growing grain foods for the cows. Circumstances and conditions, however, must govern the dairyman's attitude in this matter.



The available help can best handle cows with modern barns and equipment

It is needless for me to argue that the successful dairyman needs the best cows he can get. In my business I depend largely on purchased cows, although I am gradually going into calf raising and in a few years hope to raise nearly all of the young cows needed to keep my herd intact.

Our dairy barn is 40x80 feet outside measurements. It is constructed for two rows of cattle facing out, with 10-foot driveway between, through which the spreader or wagon can be driven for the removal of manure. The inside measurement is divided as follows: Two feeding alleys 5½ feet each, 11 feet; two mangers 1½ feet each, 3 feet; two standing platforms 4½ feet each, 9 feet; two manure gutters 1½ feet each, 3 feet; one driveway 10 feet; total inside measurement, 36 feet. For average sized cows

(Concluded on page 419)

Soil Management for Vegetable and Truck Crops

A. E. GRANTHAM

TO the grower of vegetables and small fruits the problem of soil management is of fundamental importance. Trucking crops, more than general field crops, require special soil conditions. The difference of a few days in maturity of a truck crop may make the difference between profit and loss on a season's work. The lack of quality of a truck product may mean considerable loss on the part of the grower. Maturity and quality are largely determined by conditions of the soil. Thus it becomes the interest of the grower to regulate soil conditions to meet the demands of the crop. It is true that all truck crops do not demand the same treatment, which farther increases the complexity of the problem.

It is generally accepted that the most desirable soil for trucking is of a sandy nature, warm, friable, and easily worked and of abundant fertility. Very few soils are naturally fitted for trucking. They must be modified to secure the best results. Certain soils may have perfect physical condition and yet lack available plant food; other soils may be abundantly supplied with plant food and lack the physical condition that will promote rapid growth or early maturity. It is, therefore, my purpose to give a few suggestions in regard to the use of leguminous crops as a means of improving the soil for trucking purposes.

Two great essentials of plant growth furnished by the soil are moisture and plant food. Of these moisture plays a more important part than is generally recognized. Most plants require from 200 to 500 pounds of water to produce one pound of dry matter. From 65 to 95 per cent. of the green weight of the plant is water. Some trucking products, when ready for the market, are largely water. The water content of a number of vegetables is as follows: Beets, 88.5%; cabbage, 90.5%; cucumbers, 96%; onions, 87.5%; white potatoes, 78.9%, and sweet potatoes, 71.1%. From this it will be seen that the soil must be capable of supplying a considerable quantity of water during the development of the plant. Often more stress is placed upon the plant food requirements than on moisture regulation.

Soils vary widely in their capacity for holding moisture. A coarse, sandy soil will hold far less water than a clay or muck soil. These differences in soil vary not only with respect to the water-holding capacity of the soil, but also with respect to the amount of water available to the plant. In other words, some soils will give up to the plant a larger per cent. of their water than others. The sandy type of soil is generally preferred for trucking. The Norfolk series of the Atlantic Coast Plain, of which Delaware and New Jersey are largely composed, is one of the best types for trucking. A sandy soil warms up early in the spring, permitting early work and planting, is easily tilled, well ærated, can be worked soon after a rain, does not pack or bake, and facilitates transplanting. At the same time sandy types are likely to be deficient in moisture. On account of the æration and cultivation, the organic matter is rapidly oxidized and consumed in a sandy soil.

That ingredient of soils which has much to do with the moisture content is humus, or organic matter. All organic matter has its origin in the decay of animal or vegetable matter. Organic matter affects the soil in many ways. It has the tendency to granulate clay, to make it more open and friable. On the other hand, sandy soils are made more compact and become loam-like. In other words, organic matter increases the water-holding capacity of a clay soil by making it more porous so that water can enter. The sandy type of soil is made more compact so that water can be better retained. Aside from its function of holding water, organic matter furnishes plant food. Vegetable remains or organic matter, contains all the essential elements of plant food. Thus, green manuring, or the growing of cowpeas for plowing under, becomes a means for supplying the necessary elements of plant food. The decay of organic matter in the soil is accompanied by the production of organic acids. Carbon dioxide, the most important of these, acts with a solvent effect upon the mineral particles of the soil.

We may say that the presence of organic matter in the soil contributes to its moisture content, to its store of soluble plant food, and toward increasing solubility of the mineral particles. The fact that organic matter in the soil provides the nitrogen should be given large consideration. It is through organic matter entirely that the nitrogen is supplied to the soil. There are different methods of increasing the humus of soils. Some is secured indirectly through crop residue, such as stable manure or refuse plants. Generally the trucker has little vegetable matter to be returned to the soil, since most of his crops are tilled.

Stable manure is the product most generally used for this purpose, but becomes expensive when the trucker is located far from centers of supply. One of the most satisfactory methods of supplying vegetable matter to the soil is by the use of legume catch crops. After the truck crop has been harvested the land may be sown to some legume which may be turned under before the next planting. Several legumes are available for this purpose. For winter sowing, Crimson clover and vetch are the best. These may be sown among the growing plants, such as tomatoes or melons, and will keep the ground occupied after the main crops are removed. In cases where the truck crop is early maturing, as canning peas or early potatoes, the ground may be sown to cowpeas or soy beans, which may be plowed under and the land again sown to Crimson clover that fall. Under some conditions it will not be desirable to plow under the entire legume crop.

(Concluded Next Issue)

Let's Give Our Fighters the Biggest Lift of All

By Philip E. Howard, Publisher of "The Sunday School Times" and member of The War Council of The Pocket Testament League

We asked Mr. Howard to write this article for The Practical Farmer because we believe that the splendid work it tells of is one of the greatest services that is being rendered the boys we are sending to the front to do *our* fighting—and a service in which every single one of us can help actively. We ask you to read every word of it carefully—including the foot-note which we have added.—The Editor.

"SAY, Joe, are you going to carry that with you where you are going tonight?"

The young fellow in khaki looked confused. He glanced at his fellow-soldier who had asked the question, and then at the pocket Testament which he had just accepted from a visitor on condition that he would carry it with him wherever he went, and read a chapter a day.

What answer *could* he make? Would he keep his promise and carry that Testament, or would he give up the night outing of which he didn't seem especially proud as he looked at the Testament? The business man who gave him the little book in one of the American camps, had no doubt from the boy's look as to what he did decide. He didn't give back the Testament!

And some folks say the boys in khaki and the boys in blue are simply loaded with more Testaments than they can rightly use!

Don't believe a word of it!

That same business man, moved by a desire to do the biggest thing he could for the boys in that camp, spent a day or two there—and brought a lot of Testaments back with him? No, not exactly that.

He gave out seven hundred and ninety-four to enlisted men who *signed the agreement* to read and carry, and thirty-eight to officers and one to a chaplain, all on the same terms.

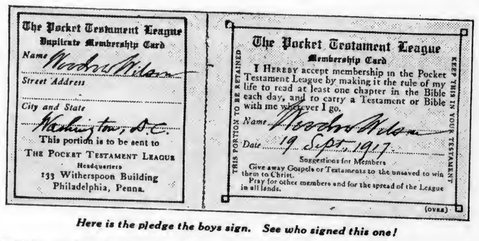
The *next day* that regiment left for France. And he was told at the camp that if he had been there on Monday of the same week he could have reached in the same way five thousand who had just gone.

No, he couldn't bring Testaments home again, you see, because the boys *wanted* them, and on conditions not altogether easy.

That's the story of the 365,000 British soldiers who are signed members of The Pocket Testament League. And that's the story now written day by day across the complex life of our American camps on this side of the sea as the traveling secretaries of The Pocket Testament League go from camp to camp, holding crowded meetings in the Y. M. C. A. buildings, and giving Testaments to the men who sign up.

The signing up makes all the difference in the world. A fellow doesn't make a compact like that for a little book he doesn't want. And the moment of signing gives the secretaries a chance to say an earnest word about the man's own relation to Christ, with the result that a large percentage write "A. C." in the Testament, meaning that they have accepted Christ.

The League itself had a humble beginning. A twelve-year-old English school girl, Helen Cadbury, was led to accept Christ. Two or three years later she began to carry a small Testament as a help in soul-winning. Other girls were led to do likewise, and so The Pocket Testament League was started. Miss Cadbury married Charles M. Alexander, the gospel singer, and in their world-tours they were constantly suggesting the simple plan that Miss Cadbury had found so helpful. In 1908 the League was formally launched in Philadelphia by Dr. J. Wilbur Chapman and Mr. Alexander, and is now world-wide in its scope. A committee of Philadelphia business men, headed by Joseph M. Steele, who was the chairman of the "Billy" Sunday campaign in that city, has organized as a War Council for carrying on the work of the League in our American camps.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This portion is to be sent to
THE POCKET TESTAMENT LEAGUE
Headquarters
733 Witherspoon Building
Philadelphia, Penna.

The Pocket Testament League
Membership Card
I HEREBY accept membership in the Pocket Testament League by making it the rule of my life to read at least one chapter in the Bible each day, and to carry a Testament or Bible with me wherever I go.
Name Woodrow Wilson
Date 14 Sept. 1917.
Suggestions for Members
Give away Gospels or Testaments to the unsaved to win them to Christ.
Pray for other members and for the spread of the League in all lands.
KEEP THIS CARD IN YOUR TESTAMENT
THIS PORTION TO BE RETAINED
(over)

Here is the pledge the boys sign. See who signed this one!

Good plan, you think? Well, then, there's something you'd like to *do* about it; for it's little enough we stay-at-homes can do for the boys who will soon be "over there" among temptations that can wound more fearfully than any shrapnel can.

Wouldn't you and some of your neighbors like to club together and equip a company of our boys (250 men) with Testaments? Seventy-five dollars will do that. *Any* number can be equipped at the rate of thirty cents for a Testament for each man—a specially made, beautifully illustrated, very small and yet clearly readable Testament.

Frankly now, would it be worth thirty cents to you to have some one step up to a boy you know, sign him up, give him a Testament, and head off that unworthy plan for the evening?

Will you do it for as many as your means will stand—until you feel the pinch a little?

There's a brief story about The Pocket Testament League that you can have for the asking. But any giving should be done very *quickly*, for the boys are going over faster than some of us realize.

Now, how many companies—or regiments—will Practical Farmer readers provide with Testaments? We know you will be enthusiastic over this work and agree with us that never was there a better investment for thirty cents than in a Pocket Testament in the pocket—and hands—of one o. our soldier or sailor boys—which he has pledged himself when he accepts it to carry always with him and read every day. The number that any one of us may be able to purchase may not be large, but in the *aggregate* we can pay for a lot of them. The Practical Farmer will be glad to act as your agent to collect the fund and will send The Committee's official receipt to each contributor. Address The Editor The Practical Farmer, P. O. Box 1021, Philadelphia, Pa., and write something like this: "I will provide 100 (or 50, or 10—or 1—any number you decide upon) men with Pocket Testaments, and enclose herewith $30.00 (or $15.00, or $3.00—or 30c—multiply the number of men by 30 cents for each Testament) to pay for same." Be sure to sign your name and give your full address. Remember, that to be most effective your contributions must be made *promptly*, for, as Mr. Howard says, the boys are "going over" and the time to reach them is NOW! We hope, and believe, that The Practical Farmer Pocket Testament Fund will be a large one—and the result we *know* will be gratifying.

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.
EDWARD T. WALKER, Managing Editor
THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS
W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE
F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES
J. C. Billingslea, 119-123 W. Madison St., Chicago.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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DECEMBER 1, 1917

About That Story on Page 402

I HOPE a lot of our friends will read and think about that story by Mr. Howard which I have set right in the middle of the second page (page 402) of this paper. I, personally, take the responsibility for it's being there—I asked Mr. Howard to write it and I asked the War Council to permit us to present the cause of The Pocket Testament League to Practical Farmer readers. But I don't want you good people to think I am "begging" from you—I'm not! I'm simply offering you an *opportunity* to help in a work that seems to me—and I think it will seem to you—of vital importance *right now*—well worth any sacrifice you may make to help it along. If you can't see it as an opportunity—why then you're not called upon to do anything about it—you see it's a question each of us must decide for himself. But I'm glad of the chance to put it before you any way—I certainly don't want the city people to have all the best chances!

Last issue we talked on this page about another opportunity—the great campaign of the National War Work Council of the Y. M. C. A. for funds to carry on its mighty work among the fighters in the war. That the country approves this work is shown by the tremendous response to that organization's appeal—$50,000,000 in nine days—$15,000,000 more than was asked for! We thank those of our readers who contributed so generously to that fund, either through this paper or local committees.

EDWARD T. WALKER.

Plenty of Money for Farm Loans

AS the workings of the Federal Farm Loan Act become better understood its advantages are being better realized and the amount of its loans are being rapidly increased. The Federal Farm Loan Board has recently announced that during October the twelve Federal Land Banks paid out $7,374,000 in 5 per cent. loans to the farmers of this country. This amount is practically double what was loaned during the previous month, and from now on it is figured that more than $8,000,000 will be paid out each month. The amount actually loaned is small when compared with the applications for loans which amounted to nearly twenty-seven and one-half million dollars during the month of October, and a grand total of over $193,000,000 requested from the twelve banks since they were organized. Then, too, this amount represents only the applications of the 3000 organized farm loan associations and takes no account of the approximately 2000 associations making ready to file their applications for charters. When these have all been taken care of it is thought that fully $350,000,000 will be sought through the Federal Land Banks.

As is to be expected, the great bulk of these loans are going into the Western States. Kansas leads the list with $3,039,000, followed by Oklahoma with $1,319,300, Washington with $1,259,000, and Montana with $1,158,200. Farmers in seven of the Middle Atlantic States, however, have already received $1,260,300, while applications have been made for a great deal more, those in Virginia alone asking for $5,200,000. For this reason Virginia leads the Middle Atlantic States in having had $877,600 loaned to her farmers on first mortgages at 5 per cent. interest. Pennsylvania farmers have received $141,800, West Virginia $113,350, Maryland $58,600, New York $66,350, Delaware $2600, and New Jersey nothing, although applications have been made for $604,700.

If any one is not familiar with the plan under which these loans are made, a request to the Federal Farm Loan Board at Washington, D C., will bring the necessary information.

Camouflage the Enemy—Not Ourselves

SOMETIMES it takes big events to drive home to us the meaning of small things. For instance, on all sides now we see and hear the term "camouflage." You cannot find it in the dictionary unless you have one of the up-to-the-minute kind, but it appears in war reports, in the comic papers and the talk of the street. It describes the practice of attempting to deceive the war enemy by painting false villages and guns, changing the appearance of boats, painting all objects so they will blend with their environments and using uniforms which are least easily seen at a distance. Nature has practiced the art of deceptive protection from time immemorial, as can be well testified by any country lad who has gone after rabbits and almost stumbled over them because of their resemblance to the brown grass, or hunted as a naturalist for specimens which are marked so as to hide themselves from their natural enemies. Yes, we have even known farmers to practice camouflage by giving special care and fertilization to crops along the road fences so they will make a good show and hide what is behind them. Then all of us must plead guilty to a little personal camouflage at some time or other when we wanted to make an impression or gain a point—bluff we call it in plain American.

Now the time has arrived when we must distinguish between camouflage to ourselves and to the enemy. The sooner we realize we have a serious matter in hand and tear off the personal and national camouflage so we can see things in their true light, the sooner we can end the war. There is a great mass of German propaganda going around, especially regarding the food situation, and we should not be ready to give willing ear to every idle story. Our men who are in position to view things in a world-wide light tell us that the food situation looks serious not only for our allies, but for ourselves. What each of us can do to help it rests with us, not with a government employe who, maybe, cannot even plow.

Waste Not—Want Not

ON all sides we are told to save on food, and sometimes it is hard to realize why we should do it when our cellars are stocked with winter supplies and our granaries are full. These are times, however, when we must look beyond our own line fences and take a world-wide view of the situation. It is our allies who are short of food, and if we don't supply them it is hard to tell what the consequences may be. In the early days of the war France held the enemy at bay, suffering hardships and devastation while England was getting ready; now both of them are gloriously fighting while we are getting ready. What their combined forces have not been able to accomplish we must make possible by our added strength, in which plenty of food is no small factor.

The Food Administration's appeal to voluntary saving is in sharp contrast to Germany's system of strict rationing, and it rests with the great body of our people whether it will be successful. The British plan is to handle the situation through the manufacturers and merchants, although after December 30th rationing cards are to be issued for sugar and only a half pound will be allowed each person every week. This, possibly, is only a start to rationing all other foodstuffs in the British Isles. They already have many restrictions in manufactured food products, and to waste bread is a criminal offence.

The casualty lists which have already been published, of American fighting forces, certainly bring the war home to us and we should realize as never before that there is a duty for all of us if we want to maintain our ideals for which our forefathers fought and died. All of us cannot bear arms, all of us cannot produce food or munitions, but all of us can prevent waste, not only of food, but of all products. What you and we save individually will be less than the proverbial drop in the bucket, but multiply it by one hundred million and the result is a bulwark which will eventually make the world safe for democracy.

Cater to the Home Market First

HAVE you thoroughly investigated the possibilities of your home market? We are often inclined to belittle home things and view those at a distance as larger and better. For instance, in one eastern county of Pennsylvania the farm bureau agent calls attention to the astonishing fact that although the potato crop is 100,000 bushels short of the number which are consumed annually in that county, carload after carload are being shipped away. Far be it from us to discourage producers from getting all they can for their crops, but is it necessary this year, when the railroads are swamped with business, labor is scarce everywhere and we are all working with a world-wide object in view, that all old customs should necessarily be continued? When we wanted to handle everything a lot of times to keep men employed, may be it was justifiable, but who knows whether the railroads will be able next spring to move an equal or greater amount back again? Your county agent undoubtedly can give you valuable information as to who nearby wants to buy the things you have to sell. Make it a point to get into touch with him regarding it.

Uncle Sam Seeks Plant Food

IT is too late now to plant more wheat even if we had the seed, land and labor, but from present indications we will need more wheat than the present acreage can give us. One of the surest ways to have more is to make sure that there is sufficient available plant food in the soil to produce maximum crops from the grain already planted. In many cases this condition will not prevail, especially where wheat has been grown year after year or the acreage has been abnormally extended in view of existing circumstances. The statement has recently been made that considerably more than thirty million bushels could be added next harvest to the wheat yield of the United States by the application of 100 pounds of nitrate of soda and 200 pounds of acid phosphate to each acre now planted. Experience of many growers last year showed that it was good practice to top-dress wheat fields with commercial fertilizer and it seems reasonable to believe that it will be profitable again this year with a government guarantee of a minimum price of two dollars a bushel.

Congress recently authorized the purchase of ten million dollars worth of nitrate of soda and it should be available at a reasonable price when needed. It is, of course, too early now to apply it, but it is not too early to make sure of having it when it will be needed. Your dealer is the best man to take the matter up with, but if he cannot give you satisfactory information regarding your next year's supply of fertilizer the Department of Agriculture at Washington can tell you how to reap some of the benefit of this large purchase of nitrate of soda.

Bulletin Helps for Farmers

Gardeners will be interested in two Farmers' Bulletins just issued. No. 829, entitled "Asparagus," covers in 20 pages the production of this vegetable from seed to market. No. 837, "The Asparagus Beetles and Their Control," describes these pests of the asparagus plant and suggests ways of controlling them.

"How to Make Cottage Cheese on the Farm" is well told and illustrated in Farmers' Bulletin No. 850. As it treats of starters, rennet, equipment and the marketing of this product, possibly even the "dairy maid" who has made "cheese" for a number of years can get new ideas from it.

"Home Storage of Vegetables" is the subject of Farmers' Bulletin No. 879. It contains 22 pages and illustrates the construction of various houses and pits used to store all the common vegetables.

Any or all of these Farmers' Bulletins may be obtained free from the Division of Publications, Department of Agriculture, Washington, D. C.

The New Jersey Department of Agriculture has recently published Bulletin No. 7, entitled, "Modern Market Methods." It contains 26 pages overflowing with valuable suggestions on one of the greatest of farm problems—how to profitably dispose of the crops after they are grown. A free copy may be had by addressing Secretary Alva Agee, Trenton, N. J.

The Garden in December

W. F. MASSEY

In sections south of Wilmington, Del., the Wakefield cabbages and lettuce can still be set in open furrows as heretofore advised. Writing this near mid-November, the lettuce plants I intend to set before the end of the month have had no sort of protection, for having gotten them to the size desired for transplanting, I do not wish to have them grow and get tender.

Last winter, when the early cabbage plants were killed in November from Maryland to South Carolina, it was because the weather had been such that the plants kept growing right up to the coming of a severe and unusually early freeze, before there had been frost enough to check and harden the growth. And it was rather strange that the lettuce plants survived the freeze that killed the cabbage plants.

Well manured furrows on which lists or beds have been made, are opened with a shovel plow and the cabbage plants set full length of the stems, 16 inches apart and a lettuce plant set in the spaces between the cabbages. One of our growers made a notable profit with an acre of lettuce set in the late fall.

Of course, for winter cutting we must have the lettuce in a frame under glass. In the northern part of the Middle Atlantic States these frames will need straw mats as a protection to the glass when the nights get into the regular winter cold, unless the double glazed sashes are used. These with two layers of glass and a dead-air space between will need no mats even in zero weather.

In my own garden the plants that are expected to furnish headed lettuce for Christmas and New Year were planted in October and are now advancing rapidly. Early in December I will plant a frame from the same lot which are supplying the plants for setting in the open furrows. These will be ready in late February and March, and will be followed by the ones set in the open ground in April (those setting now and in early December).

My onion sets planted in September are now growing nicely with tops about ten inches high. In the colder upper sections onion sets may now be planted three inches deep and they will keep and grow in the spring earlier than you could prepare the soil and plant them. They will remain dormant in the frozen ground. Here, where our soil does not stay frozen long at a time this would be risky, as they would grow and be too tender to stand the cold which the early-planted ones will.

Where the cabbages were not buried in late November no time should be lost in getting them into winter quarters. For keeping well I do not care to have the heads too solid before burying, as they keep better when not too mature, and will grow and head well. Here I merely turn the heads over to the north and cover the stem and lower part of the head well with soil.

In a colder section the cabbages should be lifted and buried in close rows either upside down or in the natural position. Packed close together and deep enough in the ground to cover the stem and lower part of the head and the open tops protected from the winter sun by a cover of green pine boughs they will keep well and the stems will sprout in the spring and furnish greens. Buried upside down and the outer leaves well tucked in they will head and blanch better, but the stems will be destroyed.

Where the soil freezes up and remains frozen it is better to lift the parsnips and salsify and bury them packed closely together upright in trenches like those used for celery and covered with straw or rough manure. Here I do not lift leeks, parsnips, salsify, carrots or beets, but let them remain where they grew, with a furrow thrown to each side of the rows.

I am trying this winter some sets of the Prizetaker onion. These are of the Spanish type and are considered less hardy than our American varieties. If these will winter all right it will be cheaper to use the sets than to grow plants under glass in January to set in the spring, as we have been doing, and expect to do this winter.

The fall crop of spinach is now about cut out. The late sown is now just large enough to winter. This will now get a heavy mulch of manure as a more complete winter protection, and food for the spring growth. A Northern writer of garden notes advises the sowing of spinach in January if a chance can be had. He says that this will start very early in the spring before the soil could be prepared. I have found that the spring-sown spinach runs to seed almost as quickly as that wintered over from sowing the last of September. The Norfolk, Virginia, market growers commonly sow a crop in February. But the fall-sown crop will keep in cutting in the spring until we have young chard plants ready, and these are so much like spinach when cooked that we hardly miss the spinach.

Irish potatoes in the cellar should be overhauled a few weeks after storing, and the decaying ones culled out and some air-slaked lime dusted over the sound ones to prevent the spread of any rot. Keep them in total darkness and just a degree or two above the freezing point.

Sweet potatoes that have been cured at a high temperature will keep best at a temperature of 45 to 50 degrees.

We formerly took up some rhubarb to force in a cellar in winter. But we have found it so easy to keep a winter supply in glass jars that it does not pay to waste roots for forcing. The rhubarb stalks are simply skinned and cut up and packed in fruit jars and filled with cold water and the tops screwed on and they keep perfectly, since the stalks are so acid that fermentation is arrested. Rhubarb roots can be taken up now and divided and replanted.

In the flower garden now is the time to plant sweet peas. Dig a trench a foot or more deep. Put in this a good supply of well rotted manure and cover this with soil and plant the seed rather thickly and cover about five inches deep. These will get the start on any planted in the spring. In fact, down here seed planted in October will come up and grow and stand the winter.

Phlox Drummondii sown now will get in bloom earlier than seed sown in spring and will bloom just as long.

Mulch the strawberries with coarse strawy manure just barely to hide them. The straw will be washed clean by spring and can remain between the rows as a mulch.

If not already done, cover the entire garden, flower beds and all, with a heavy coat of stable manure and let it lie to rot until spring gardening begins, and it will then be in condition to feed crops. Here, I find it hard to get manure at all, and then only perfectly fresh manure. Fresh manure applied in spring will do comparatively little good, but applied in the fall it will have gotten into a more available condition by spring.

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F. A. HARRISON,
210 N. 3rd St., Harrisburg, Pa. Canadian Gov't Agt.

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Winter Work in the Orchard

Pruning and spraying are two operations which can be performed at a time when other farm activities have slowed down, according to A. F. Mason, in charge of horticulture extension of the Pennsylvania State College.

Spraying is the first essential in the production of good fruit. Not only are the insect and fungus enemies of the fruit controlled by spraying, but there is a beneficial effect of even greater value to the tree. Demonstrations in which a part of the farm orchard was sprayed and a part left unsprayed, showed such a marked contrast in vigor of tree and color of foliage as to be noticeable at a distance of a quarter of a mile away.

A longer period of growth means the better development of strong fruit buds which in turn insures a larger crop for the succeeding year. Demonstrations conducted in Luzerne county in orchards sprayed four times during the year showed that leaves on sprayed trees were green and vigorous long after terminal growth had stopped, while the leaves on the unsprayed trees dropped much earlier and the twig growth on these trees was much smaller. There was also a marked difference in size and freedom from blemish of fruit coming from sprayed and unsprayed trees.

The first, or dormant, spray for scale may be applied in autumn any time after the leaves fall until freezing weather sets in. A concentrated solution of lime-sulphur testing 32 degrees Baume should be diluted—one gallon of the solution to eight gallons of water. If a home boiled solution of lime-sulphur is used, it should be diluted until it tests 1.03 specific gravity. The application should be thorough so as to insure all parts of the tree being covered.

In order to use time to advantage, apple trees may be pruned at any time during the year except early fall. Usually there is little to do on farms during December and this month may thus be devoted to pruning the apple orchard. Peach trees should not be pruned until spring, as the number of buds left after winter freezing determines to a large extent the amount of wood to be left on the tree.

Rules to be observed in pruning old apple trees are:

First, cut out all crossing branches.

Second, remove all dead wood.

Third, thin out brushy areas in order to admit more light and ventilation.

Fourth, cut back runaway top branches to a lateral leading toward the outside.

Fifth, never leave a stub.

Rules to be observed in pruning old peach trees are:

First, open up the center of the tree like a vase in order to admit sun and air to the middle of the tree.

Second, cut back everything to a point easily reached by the long-handled hand shears.

Third, cut to outside twigs.

Fourth, thin out and shorten tops so as to keep new fruit bearing wood growing in the lower branches.

Fifth, cut back more severely if few buds are present than if the tree has a normal crop.

Converting Cider Into Vinegar

The best temperatures for turning apple juice into vinegar is from 65 to 75 degrees F., according to the authorities at the Missouri College of Agriculture. At a temperature of 65 degrees fermentation goes on slowly and two years or more may be required to make good vinegar. The time of making may be reduced one-half in a temperature of 85 degrees. At this temperature some of the products of fermentation are lost and the vinegar will not be as high a quality.

The first stage of fermentation changes the sugar in the juice into alcohol. While alcoholic fermentation is going on bubbles or beads rise to the top of the fermenting juice. When these beads cease to rise at the end of a few months, acetic fermentation begins. At this stage "mother" from old cider vinegar may be added.

Fermentation will be more rapid and successful if the juice is kept well aired. For that reason the casks or barrels should not be more than one-half or two-thirds full. This admits a good air-space above the fermenting juice in the barrel. The bung-hole should be left open for the entrance of air, but screened with mosquito netting to keep out vinegar gnats or other insects.

In making vinegar, fresh juice should never be added to older juice that has already begun to ferment. As acid in the older juice has begun to form, it will prevent proper fermentation of the fresh juice which is added.

When Retailing is Unsatisfactory

Everywhere reports tell of an increased demand from housewives for staple products direct. Growers who have established a trade or who can get enough of such orders are usually glad to do this sort of business. Some who never have taken the time to sell retail or who are not conveniently located to haul to market frequently are not interested. One fruit grower in Sussex Co., N. J., who is noted for fine apples, recently told Alexis L. Clark, Chief New Jersey Bureau of Markets, that his desk was half covered with letters from people asking his prices on one bushel or one barrel of apples. He said he actually could not spare the time to answer them. As for making any such sales he said he would not consider it. He lives four miles from a shipping station. A wagon must carry a load when it is necessary to send one. Experience has shown that all persons who write nice letters do not pay their bills promptly. More trouble is found in delays and breakage with small shipments than large. Too often the sale of one barrel necessitates more correspondence than one of one hundred barrels. These are some of the reasons why this apple grower and other producers so situated are not anxious to cut out the middleman.

Pennsylvania Potato Growers to Organize

All Pennsylvania potato growers are invited and urged to attend a meeting to be held Thursday, December 6, 1917, at 11 A. M., in the offices of the Committee of Public Safety of Pennsylvania, 7th floor, Finance Building, Philadelphia, to discuss and effect the organization of a state division of the Potato Association of America.

The Potato Association of America, which has been in existence for a number of years, is a thoroughly established going organization under the leadership of potato experts from all sections of the United States, aided by the U. S Dept. of Agriculture. The new state division will have the benefit of the experience of the National organization without the necessity of passing through the preliminary and educational stages of such an experience.

Representatives from the United States Department of Agriculture, the Pennsylvania Department of Agriculture, the Pennsylvania State College and the Pennsylvania Committee of Public Safety will attend this organization meeting in Philadelphia.

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Electricity Appeals to the Farm Hand

"Mr. Zehring is away at the Dairy Show," the hired man told us when we called at the farm home of Oscar Zehring, well-known breeder of Holstein-Friesian cattle. The Zehring farm is located out on the western edge of the Miami Valley in southwestern Ohio, some ten or twelve miles from the city. The farm buildings are big, substantial and modern; the great dairy barn is a model of neatness and convenience. One of the features that impressed us is the electric lighting. We spoke of this to the hired man, remarking that electric lights seemed just a bit unusual away out in the country.

"They're one of the finest things on the place," he declared. "It is necessary here for us to do a great deal of work after dark, and carrying a lantern around, especially about all these buildings and the barnyard, was always a great nuisance. It was dangerous in the first place, for there is always a chance of a lantern getting upset or swinging into something that burns easily.

"Or on windy nights it was likely to blow out just when we were in the biggest hurry, and leave us in the dark. Then if it was not filled and the chimney cleaned when we were ready to start work, some one had to stop and get it in shape. After it was ready we had to carry it around from one place to another, or keep hunting a safe place to set it down.

"Actually I believe it took us a third longer to do the work then than it does now with electric lights all over the place. Now, we can turn a switch and have this whole barn lighted—feeding floors, feed rooms, mows—everywhere.

"Outside there is a 100-watt light on the silo that we can light from here at the barn door or from a switch down at the house. This lights up the whole barnyard and away out across the pike. With everything lighted up, inside and out, we can go right ahead the same as if it were daylight, saving a lot of time and doing the work with less effort.

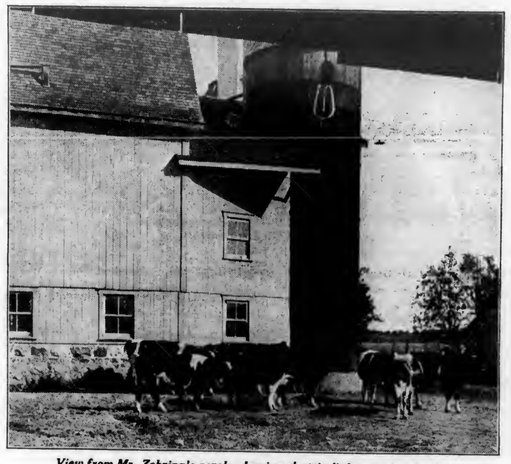
"Then we can use electric power to pump all the water for the stock. That saves time, too, and saves the labor and exposure the old hand pump requires.

"In the house, of course, they have the electric lights and they use the power to run the vacuum sweeper, run the churn and washing machine, and they do the ironing with an electric iron.

"I suppose nobody around gets more service out of their electric plant than we do, and there are a good many in the neighborhood. They have one like ours at the township high school, and another at the church just up the road. At the church they light the building and a motor runs the blower for the pipe organ.

"This is our plant, here in the washhouse. You see the engine is air-cooled. There is nothing about it to freeze, so we can set it out here, for the storage battery won't freeze with any ordinary winter weather. The engine and generator are built as one unit and they take up very small space. The engine is self-cranking. It will charge the storage battery on a gallon of fuel and it stops automatically when the battery is fully charged. We use kerosene for fuel and since we only run the engine two or three times a week it doesn't cost much to get all the electricity we need.

"Sure it's a fine place to work and I'll tell you—if I ever have to look for another place, I'll try to pick a farm where they have electricity. It makes a great deal more difference in the work than any one would realize until they have tried both ways."—J. J. F.



View from Mr. Zehring's porch, showing electric light attached to silo and one at the house

Getting the Most from Farm Manure

This is a good time to rediscover the value of farm manure. One ton of manure contains more nitrogen and potash than 500 pounds of 2-8-2 fertilizer. Manure reinforced with acid phosphate is the most effective fertilizer known. The weak point about manure is that there is not enough of it. More of it is needed. More men are needed to preach and to practice the saving of every particle of manure produced on the farm.

Just what acid phosphate is, what it is good for and when it should be used is something folks are constantly asking about. To meet the demand for this information the Ohio Agricultural College Extension service of Columbus, Ohio, has prepared an illustrated publication of 16 pages, which may be had without cost on application.

F. R. Stevens, agriculturist of the L. V. R. R., has been appointed agricultural secretary of the Penna. State Chamber of Commerce, with headquarters at Harrisburg. The agricultural work of the railroad will now be conducted by P. H. Barnett and county agents.

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The items here represent only a few sample values. There are 100,000 more in the pages of our catalog, "Your Bargain Book," which your have in your home. Get this book out today! It will help you make every dollar you spend go farther and show you the way to real ECONOMY.

$4.85 *Size, 6x9 Feet*

7SA8209 One-piece Congoleum Utility Rug, size 6x9 ft. These rugs lay flat without tacking and will not crack or curl. They look well and wear well. Can be washed clean with soap and water. Shipping weight, 23 lbs. Price, each **$4.85**

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Other sizes and patterns shown on page 780-784 of Your Bargain Book.

9x11-Velvet Rug $15.65

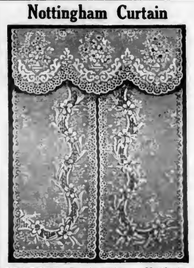
7SA10602 A Seamed Velvet Rug of good weight, closely woven in a beautiful colored floral design with tan ground, green and red colorings. Size, 9x11 ft. Shipping weight, 23 lbs. Price, each **$15.65**

Other rugs shown on pages 781 to 783 of "Your Bargain Book."

Scrim Valance Curtain

38A2075 A neat Scrim Valance Curtain, trimmed with 2-inch filet insertion and 2-inch hem. Each curtain 2 yds. 6 in. long, 22 in. wide; valance, 25x15 in. Already hemmed for use. Shpg. wt., 1 lb... **79c**

Nottingham Curtain



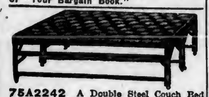
38A3003 Lambrequin Nottingham Curtain in one piece, divided at the bottom to look like two curtains with valance. Width, 60 inches. Length, 3 yards. Shipping weight, about 1¼ lbs. Price, complete **76c**

Scrim Valance Curtain

38A2080 Scrim Valance Curtain with beautiful filet insertion. A Colonial effect. Each curtain 24 inches wide, 2 yards 6 inches long. Valance is 27x15 inches. Shpg. wt., 1½ lbs. Price, complete **$1.15**

Tapestry Brussels $8.95

7SA8490 A Seamless Tapestry Brussels Rug 6x9 ft. Comes in a rich floral design, well covered; has a medallion center of green and brown with delicate shades of tan and a border of red roses. Shipping weight, about 11 lbs. Price, each..... **$8.95**



75A2242 A Double Steel Couch Bed in popular design. May be used as two separate couches or as a double bed. Furnished with guaranteed Homelink fabric spring and a soft cotton mattress. Each couch 5 ft. 10 in. long, 24 in. wide and 17 in. high. Shpg. wt., complete, 80 pounds. Price..... **$7.95**

Kitchen Chairs

85 *Cents Each*

75A1168 Good Strong Kitchen Chair, made of solid kiln dried hardwood, finished in golden oak gloss, perfectly fitted back posts, braced to seat as illustrated. Height 36¾ in. Seat 15¾ in. Shpg. wt., 12 lbs..... **85c**

For all kinds of chairs see pages 736-777 of "Your Bargain Book."

Oak Kitchen Cupboard, Glass Panels

$6.45

95A2606 Glass paneled kitchen cupboard made of hard wood with solid oak front, finished in golden oak gloss. The upper section of cabinet has shelves. There are two roomy drawers and a spacious cupboard underneath. It is 78 inches high, 38 inches wide and 15 inches deep. An exceptionally well made cupboard. Shipped from warehouse in Buffalo, N. Y. Shipping weight, 110 pounds. Price **$6.45**

Oak Kitchen Cabinet With Sliding Nickeloid Tray

$16.30

75A898 Handsome kitchen cabinet with many excellent features of construction. 71 inches high, 40 inches wide and 26 inches deep. Very strongly built of selected stock with light golden oak finish. The top cupboard has white enameled interior. It is fitted with a removable all-metal flour bin that holds 25 lbs.; sliding nickeloid tray, maple cutting board and every convenience for time saving. Shpg. wt., 190 lbs. Price **$16.30**

Drop Side

Posts 1⅛ in. diameter

$8.65

75A2625 Steel Crib 47 inches high, 4 ft. 6 in. long, 2 ft. 6 in. wide. Has a link fabric steel frame spring. Height from spring to top of crib, 23 in. Shpg. wt., 85 lbs. Price, each.. **$8.65**

Loose Cushion Rocker

$6.95

95A2165 Loose Cushion Parlor Rocker, made of selected birch. The cushion is made of genuine hair covered with a mercerized, plain green velour. Seat frame is very heavy to which the legs are bolted. Claw feet legs. The seat is veneered. Measures 24½ inches wide, 20 inches deep and the back is 29½ in. high above the seat. Shpg. wt., 35 lbs. Price..... **$6.95**

These are only a few of the 100,000 bargains in "Your Bargain Book"—our 1,000-page catalog, which you have in your home. Get this book out today and begin to save money!

$5.90 *Imitation Brown Spanish Leather Covering*

Reclining back attachment and foot rest. Seat 21x17 in. with steel spring construction. Arms 4 in. wide, back 25 in. high from top of seat. Shpg. wt., 60 lbs.

75A56-100 Solid Oak, golden finish. Price..... **$5.90**

75A56-200 Birch finished mahogany. Price..... **5.90**

Hardwood Rocker $2.22

75A1164 Hard wood Rocker, golden oak gloss finish. Back 28 inches high. A well shaped solid wood seat 18 inches deep, 21 inches wide. Shipping weight, 20 lbs. Price, each..... **$2.22**

Dining Room Table Chair to Match

Golden Oak

$9.95

$1.98

75A1111 Solid oak with top, back slat and panel of quarter-sawed oak in golden finish. Box seat covered with genuine black leather. Height of back, 22 in. Seat, 17½x15½ in. Shpg. wt., 14 lbs. Price, each **$1.98**

75A2435 6 ft. Extension Table with 42 inch top and 8 inch pedestal of latest design. Massive legs, with claw feet. Made of solid seasoned oak, golden oak gloss finish. Complete with leaves. Shpg. weight, 65 lbs. Price..... **$9.95**

For Tables of other styles and finishes see "Your Bargain Book."

Nursery Chair

75A348 Nursery Chair made of woven splint wood, brown color. Fitted with swinging tray. Seat is 12 inches wide. Wood parts finished to match. Splendid value. Shpg. weight, 6 lbs. Price, each.... **95c**

75A289 Solid Oak Colonial design Bonet 39 in. high of golden finish with beveled French plate mirror 20x10 in. Top of base 42 in. wide by 21 in. deep. Linen drawer 36x14x7 in. Cupboard 33x17x16 in. Shpg. wt., 180 lbs. Price, each.. **$16.90**

Oak Bedroom Set

$19.80 *Also Sold Separately*

Three pieces to match, all of selected material, fully guaranteed.

75A595 Neatly designed wash stand of selected plain oak. Top is 30 in. wide and 16 in. deep. Golden oak finish. Deep drawer measures 10⅝x23x4¼ in. The closet is 14⅛ in. deep and has two panelled drawers. Shpg. wt., 65 lbs. Price, each.... **$4.95**

75A596 Dresser to match, of the same good quality. Has perfectly fitted drawers. Top measures 38x19 inches. Fitted with 24x14-inch beveled mirror. Has 2 large and 2 small drawers, nicely made and well fitted. Shipping weight, 115 lbs. Price, each.... **$11.35**

75A594 Solid Oak Bed, golden oak finish. Head and foot board all paneled construction. Extreme height, 55 inches. Furnished in the regular full width only, 4 ft. 6 in. wide. Shipping weight, 105 pounds. Price, each..... **$8.65**

Combination Offer

One of our biggest values. A bed, mattress and spring for $16.95. **Also sold separately.**

75A2259 White enameled steel bed with two-inch posts and 5/16-inch filled rods. Widths, 4 ft. 6 in., 4 ft. or 3 ft. 6 in. Shpg. wt., 95 lbs. Price..... **$7.95**

75A2305 Homelink wire fabric spring, guaranteed for 10 years. Has 56 helical springs and double riveted frame. Will not sag. Widths, 4 ft. 6 in., 4 ft. or 3 ft. 6 in. Shpg. wt., 40 lbs. Price, each..... **$3.85**

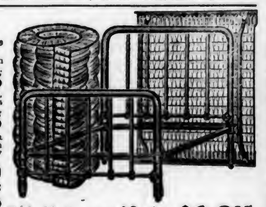
Mattress made of 44 lbs. of Canadian sea moss with heavy layer of new felted cotton on top. It is well tufted and covered with heavy ticking. Shpg. wt. of largest size, 54 lbs.

75A421-46 Size 4 ft. 6 in x 6 ft. 3 in. Price..... **$6.10**

75A421-40 Size 4 ft. x 6 ft. 3 in. **$5.85**

75A421-36 Size 3 ft. 6 in. x 6 ft. 3 in. Price..... **$5.60**

Be sure to state size of bed and spring.



Bed, Mattress and Spring **$16.95**

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Roup, Colds and Late Molters

F. V. L. TURNER

Worry over a failure to get November eggs should not influence adversely the care of the molting breeders which will be required next spring—neither should success in securing early layers obliterate the importance of making conditions still better for the remainder of the winter and in cleaning up any little faults that may interfere with next season's work.

Scarcely a section of the country has or will escape colds, catarrh in virulent form, bronchitis, roup and pneumonia, and all because houses are allowed to get damp for lack of ventilation, failure to spray, inattention and just plain willful neglect. Colds run into catarrh, roup comes without any warning and there is not a more devastating menace to poultry than this ugly and fatal ailment.

There is no known cure—the disease in some stages responds to treatment, the care, patience, expense and unsatisfactory results make the treatment a hazard without chance of adequate return. Whether or not the disease is hereditary has never been fully determined. There is one certainty in connection with the disease; quick death and burning of the affected carcasses is the best insurance against its spread.

Germicides in the drinking water prevent, to some extent, epidemics; the very sick, roupy fowls drink little, if any, after the last stages are reached, and relief in this direction is impossible. Rarely do roupy birds eat in the secondary stages; starvation is responsible for many deaths in such cases.

Simple colds, bronchitis and pneumonia are more easily handled and are not so alarming as roup. Drafty houses are much more liable to spread colds (each individual can contract a cold without contact with sick birds simply from a drafty house) than occupancy of the same house with sick birds.

For colds, lime water will effectually prevent epidemics; the remedy for cold is the following, and it is highly efficacious: Powdered gentian root, 4 drams; powdered ginger, 4 drams; sulphate of iron, 2 drams; hyposulphite of sodium, 1 dram; salicylate of sodium, 1 dram. The dose is 3 or 4 grains a day for each bird, administered with bread moistened with milk, or the dose mixed with a small quantity of mash, moistened with water. Bronchitis is successfully treated with one grain of black antimony once a day in addition to the dose above prescribed.

Molting birds are great sufferers from damp and badly ventilated quarters—it is far better that molting birds roost in trees rather than occupy foul quarters where moisture is present. While the late molter is apparently the least profitable, yet this is not the case—the late molter is in better shape to produce livable chicks than the early molter, and therefore is more profitable. A flock of late molters covers the period between maturity and pullet eggs—a period wherein the early molter has no place of any kind. Since the late molter takes less time to get her new clothes her inactive period is shorter than the early molter's—likewise the personal risk to the late molter is less than with the early molter.

The practical, patiently exact English poultry raiser does not employ early molters for breeders, because of all the reasons stated above. It is of prime importance that all molters have a little more care when changing their garb—a little oil meal added to the ration will assist feather growing.

Molting can be materially assisted by the use of the following mixture, as will health in general and an early resumption of egg laying: Sulphur, 3 ounces; magnesium sulphate, 10 ounces; magnesium oxide, 1 ounce; sulphate of iron, 2 ounces; ground ginger, 2 ounces. Give as a dose of the above mixture a teaspoonful in 12 quarts of moist mash to 50 hens. This same mixture can be successfully used all through the year with chickens of all ages, ducks, turkeys, etc. Young chicks, particularly, are much benefited by the use of this compound, the same dose to the amount of mash if the quantity is required for the same number of youngsters. A teaspoonful to 50 baby chicks (in mash) will help growth and health.

Do not use red pepper in fowl management—chilled youngsters can be warmed up with ground ginger or black pepper. The dose is a good pinch of either to two or three rain-soaked babies. Older fowls can be benefited by either of these condiments when wet or chilled. Common sense, a few old-fashioned remedies and good feed seem to be the real wheels that run the chicken machinery.

Let us again urge that the pullets be speeded up to an early yield.

Will you improve your flock next spring by introducing a male from a heavy laying flock? Egg laying capacity comes from the son of a heavy laying mother.

Physical flock weakness is largely responsible for the poor hatches that come in the early spring—get a vigorous, healthy male and make better hatches.

The House for Winter Layers

A. J. BRADLEY

When "the melancholy days have come" the best insurance against loss of egg production in the coming winter days is to provide quarters for the laying hens that will be comfortable for them. For this purpose I have found no type of poultry house to be as economical as the shed-built structure, sloping to the rear and with a row of windows across the front not too high from the ground, and with a wire mesh opening above the windows.

Light enters better and the rays of the sun will penetrate farther in the short winter days, while the foul odors will rise to the roof and pass out the front elevation. This kind of poultry house is the easiest to build, turns water to the rear, well out of the way of the attendant, and may be built, even at the present high price of building materials, at a cost of not over $1 per hen.

I prefer concrete for floors in preference to dirt where the building is permanent. In colony houses which are shifted from place to place this is not possible. Concrete costs more than other flooring in the first place, but the many advantages it has over them more than overbalances the first cost. It is dry, sanitary, easily cleaned and rat-proof. There is nothing more disheartening to a poultryman than to open his door on a winter morning and find his best layers victims of rats.

In building the walls of a poultry house, temperature, dryness and purity of air are the three main points to be considered. The best wall from these standpoints is to use one thickness of lumber on the north, east and west sides and to line on the inside with roofing paper. Owing to the pitch of the roof of the shed-type of building this paper is better than shingles. Tin is too expensive, and besides, is too hot for the fowls in summer.

The important things in a poultry house are to keep it dry, of medium temperature and free from drafts. Moisture in a poultry house is caused largely by condensation from the fowls' breath, the evaporation of the drinking water and the droppings. The open wire in the front of this type of house takes care of this.

Pennsylvania.

Way to Feed for Eggs

One of the principal factors in taking care of the laying flock is the method of feeding. If a good production is looked for, the birds must be supplied with the proper materials for it. Poultrymen should realize that it is not economy to cut down on the feed, for with egg prices so high, they can afford to feed all that the birds require for a high egg production. The New Jersey Agricultural Experiment Station recommends that a dry mash containing equal parts of wheat middlings, wheat bran, ground oats, corn meal and meat scrap (50 per cent. protein) be kept before the birds at all times in hoppers which are easily accessible. To supplement this dry mash, a grain ration composed of equal parts of wheat, cracked corn and clipped oats should be fed morning and night in deep litter to compel the birds to scratch for it, thus getting proper exercise. In cold weather, two parts of cracked corn and one of wheat and oats can be used.

Green food should be supplied the birds at all times either in the form of mangel beets, sprouted oats, cabbage, or some other succulent material. Grit, shell and charcoal, as well as clean, fresh water, should also be kept before the flock constantly. Keep the feeding and watering utensils clean, scrubbing them thoroughly at least three times a week.

Hopper Feeding and Grit

Ground feeds are necessary for most efficient digestion in poultry. Hopper feeding saves labor and furnishes the necessary supplementary feed at all times. There is no danger of poultry overeating on ground feeds fed dry in a hopper. The Missouri College of Agriculture is recommending the hopper as a labor saver in the poultry yard.

Limestone grit or oyster shell is also necessary for laying hens. A laying hen requires large quantities of shell-making material. Nearly all of this must come from the grit and shell she eats. It is poor economy not to keep a liberal supply accessible. One extra egg a year will pay the bill. It returns the money invested a hundred fold.

Wonderful Egg Producer

Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and makes hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker, write E. J. Reefer, poultry expert, 4369 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his Free poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

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Ideas for Inside of the Poultry House

J. RAYMOND KESSLER

A number of poultry keepers are laboring under the delusion that a dusty poultry house is not only harmless, but a desirable condition because of the idea that dusty quarters means death to lice. In truth, a house filled with clouds of dust is just as harmful to the fowls as to the poultryman himself. The dust that arises when the fowls disturb the litter irritates the eyes, throat and lungs of the hens just the same as with other animals or humans, and the fact that the dust consists to a very great extent of manure makes it all the more harmful.

A majority of the throat, lung and eye troubles with which fowls are affected, especially during the winter months when closely confined, are due to this cause. A close examination of fowls housed in such quarters will show the nostrils and eyes of the birds to be filled with the matter. This condition is anything but healthful and as a preventive of lice is of doubtful value.

In the matter of the dust bath the observing poultryman will notice that a hen, if allowed her own way, will select slightly moist earth for her bath, instead of the dry, irritating matter provided by most poultry house dusting quarters. This slightly moist earth acts like moist sawdust when sprinkled on a dirty floor and swept up—cleaning all dirt and scurff from the skin and base of the feathers, thus giving the fowl a clean body which will not harbor lice.

It is very often a hard matter to keep down the dust in a poultry house where the quarters are kept dry, but it can be reduced considerably if the causes are removed. The use of wooden or concrete floors instead of earth will help materially in reducing the dust. The removal of the old dust bath from the house and the arrangement of a protected portion of real earth elsewhere for dusting will also help. Then by using fairly clean litter that does not powder quickly, such as straw or corn fodder, and the discontinuance of scattering air-slaked lime about the quarters the dust evil can be overcome. Such a clean-up is often all that is needed to overcome the throat and eye troubles so frequently found in flocks during the winter months.

DROPPINGS-BOARD COVERING.

Lice and disease germs are frequently carried over from one season to another in the cracks of the droppings-boards. Not only do these cracks form a hiding place for pests, but they also fill up with the droppings, making the quarters very insanitary to say the least.

This condition can be easily overcome by covering the droppings-boards with tarred roofing felt. It will, under ordinary conditions, last a full year even with daily scraping of the droppings. Thin tar paper will not last more than a few weeks. It is best to use 3-foot widths and where more than one width is necessary the front sheet should be laid first and the back sheet lapped over it so as to avoid tearing when scraping.

The felt should be laid flat without wrinkles and tacked along the edges with large-headed tacks to keep them from tearing through. Tin caps should not be used, since they only hinder one in cleaning the boards.

Such a covering will make the cleaning easier and the odor arising from the tarred felt will act as a discouragement to lice and mites, not to mention the very desirable part of having a clean droppings-board for the next flock by simply replacing the covering.

Pennsylvania.

Vineland Contest Ends First Year

The first year of the Vineland Egg Laying and Breeding Contest under the direction of the New Jersey Agricultural Experiment Station, ended November 1, with a total production of 161,875 eggs from 1000 hens. A White Plymouth Rock hen laid 301 eggs during the year, winning over a White Leghorn which laid only 290. A Columbian Plymouth Rock was third with 288 eggs, beating a White Leghorn, fourth, with 285 eggs. The next three were Barred Plymouth Rocks laying, respectively, 278, 272, and 268 eggs, while the three last of the winning ten were White Leghorns, laying, respectively, 266, 265, and 265.

Taking pens of ten birds each which laid the greatest number of eggs we find that the first five were White Leghorns, followed by W. P. Rock, R. I. Red, W. Leghorn, B. P. Rock and W. Leghorn.

The 1000 birds are now continuing the contest for a second year in order to see what they will do as mature layers and breeders. A short monthly summary of their work will appear in each first of the month issue of this paper.

Hunting Fur with Dynamite

W. A. SAUNDERS.

Recently I discovered a den of skunks in a piece of woods on my farm. Realizing that their fur would command a good price, and at the same time desiring to rid the place of them, I decided to kill them.

My first thought was to dig out the burrow, but having no shotgun to complete the work it occurred to me that I should not be much better off after getting them out of the hole than I was in the first place.

I had a small stock of dynamite in one of my out buildings, and thought I would use a stick of it to blast out the animals. This I afterwards decided would not be feasible, because there was a chance that they would be blown to pieces and the furs ruined. Knowing that it is difficult to explode low grade dynamites without using a powerful blasting cap, and also knowing that the smouldering of the explosive causes dense, poisonous fumes, I concluded I could asphyxiate the animals by inserting a length of fuse in a short piece of dynamite and stop up the entrance so as to confine the fumes in the burrow and let the skunks breathe it. This plan was tried out with excellent success. It required about one-eighth of a pound of dynamite, costing me about 2 cents; also about 2 cents worth of fuse to secure nine pelts, which I sold for $33.

Boiled Oats for Poultry

Poultry experts in the Pennsylvania Department of Agriculture report favorable results from feeding boiled oats, and state they are the cheapest poultry food now obtainable. Boiled oats have largely, too, superseded the sprouted oats so much exploited a few years ago, as they are better, safer and less fussy.

To prepare, soak good, heavy oats twelve hours or more (in hot weather or a warm room a fresh lot should be soaked daily), dissolve one tablespoonful of salt in each bucket of water used for this, boil two or three hours and so gauge the amount of water used for soaking that at the finish the water is boiled away. Feed warm but not hot. White Leghorn pullets can have these boiled oats twice daily, say at 10 A. M. and 4 P. M., and all they will eat up clean. For old hens or heavy weight pullets, one feed a day is enough and not too much at that, lest they become too fat on this much liked feed.

Government Bulletins for Trappers

Trappers will be interested in having a copy of Farmers' Bulletin No. 869, entitled, "The Muskrat as a Fur Bearer, with Notes on Its Use as Food," which has just been published by the U. S. Department of Agriculture and can be had free upon request. While many of the fur bearing animals have decreased in numbers during recent years, muskrats have remained plentiful except in places where marshes have been drained. Our large fur trade had a high total value because of them, and during 1915 nearly ten and one-half millions of their skins were sold on the London market. This bulletin treats not only of the wild muskrats, how to trap and prepare them for food and fur, but tells of some experiments made in raising them in captivity.

There are a number of other publications of the U. S. Department of Agriculture relating to fur bearing animals, which may be obtained free upon request to the Division of Publications, Washington, D. C. If you are interested in any of the following, send for them:

Farmers' Bulletin 330, "Deer Farming in the United States." Farmers' Bulletin 496, "Raising Belgian Hares and Other Rabbits." Farmers' Bulletin 583, "The Common Mole of Eastern United States." Farmers' Bulletin 587, "Economic Value of North American Skunks." Farmers' Bulletin 783, "Laws Relating to Fur Bearing Animals, 1916." Farmers' Bulletin 795, "The Domesticated Silver Fox." Farmers' Bulletin 832, "Trapping Moles and Utilizing Their Skins." Yearbook Separate 693, "Fur Farming as a Side Line." Biological Survey Circular 72, "Private Game Preserves and Their Future in United States." Biological Survey Document 108, "Directory of Officials and Organizations Concerned with the Protection of Birds and Game, 1917."

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We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1233, DEC. 15.—Do you belong to a cow testing association? What benefit have you derived from it? How many members and cows in it and what does it cost a year? If you do not think they are good things write and tell us your objections. If you weigh and test your own milk each day tell us how you do it and what you have gained by doing it.

TOPIC No. 1234, JAN. 1.—Looking ahead to the rush of spring work, what class of harrow do you think fits the ground best and why? Are you considering the purchase of larger harrows, or do you hook two together and drive more than two horses, or use a tractor to pull several in order to overcome the labor shortage? Tell us your experience in 250 words.

TOPIC No. 1235, JAN. 15.—Have you kept sheep for the first time this year, and with what success? If you are an old hand at this business, what suggestions would you offer to the beginner. Please do not write more than 250 words.

E. A. W., Street, Md.—A light dressing of manure has always helped the hay crop, for us, and laid the foundation for following crops. Can't say my potatoes missed the potash. Enough in the soil, I guess. But a remarkably wet season did knock the yield in the spots that usually do best, although drainage was good. I find deep, frequent cultivation best for potatoes in wet seasons to prevent the great spread of roots that produce a great number of unmarketable tubers.

It is a mistake to apply expensive fertilizers and then fail to give them every assistance and support. We should have harrowed a field of corn one Friday or Saturday, but did work we were anxious to finish but which could just as well have been done any time. Sunday started a wet spell and when we got into the corn the weeds and grass had it and threatened loss of crop and fertilizer. We saved both by hard and expensive labor.

I find that it pays to have fertilizer incorporated in soil several days before planting (except quick-acting kinds, like nitrate of soda or muriate of potash). This is important for beans, especially.

With no desire to criticise, I notice that many farmers still spread lime one day and drill fertilizer the same or following day without working the soil. They have not yet learned the chemical action of lime upon the more available forms of fertilizers and that lime should be mixed in the soil several days before fertilizer is applied to get the good of both. They continue to waste much of the value of their fertilizer, in this way, and then complain that either the lime or fertilizer was no good when they have not given either a square deal.

R. B. H., Nottingham, Pa. — Being forced by serious illness to adopt what I call "poor man's farming;" that is, curtailing all but the necessary outlays involving ready cash, I sowed with my wheat 150 pounds of fertilizer instead of the usual 300 pounds to the acre, and during the winter when conditions of ground would permit, spread liberal quantities of manure from the horse stable on this. I believe that to this was due my splendid set of clover sowed in the spring. The wheat threshed out 28 bushels to the acre, which satisfied me under the circumstances.

My potatoes returned about 200 bushels to the acre, and believe I supplied the potash now missing in our commercial fertilizer in spreading on the ground (which had been plowed in the fall) the manure from the chicken houses and all the wood ashes available.

The lesson I have learned this year in regard to fertilization and the result obtained by this year's use, will justify me in giving the plan another trial. The fall plowing of potato ground and using all the wood ashes and chicken litter you can put on it, I believe will solve the costly problem of commercial fertilizer with potatoes.

I believe that I obtained a better result from spreading solely horse manure on the wheat ground, obtaining a better set of clover and grass, besides benefiting the wheat, than if I had used cow manure or a mixture of the two.

With the high cost of commercial fertilizers and their low percentage of potash, I believe that the farmer must experiment a bit with home-made fertilizers if he is to keep the cost of production sufficiently low to warrant the raising of heavy crops.

E. G. F., Dryden, N. Y.—This has been a season of excessive rains, following a season of similar nature. It has taught me several things: First, that one must do as much fall plowing as will be needed for oats and potatoes, if crops are to be good. These crops must be put in early, to give the potatoes a chance to mature before late blight is due, and to allow time to get corn and cabbage planted early enough for thorough maturing.

Second, that oats in this climate will be cured much more safely if grown with barley. The latter ripens earlier than oats and helps to cure them in the bundle, so they can be put into the barn without the long process of drying necessary for oats alone. In a rainy season this makes all the difference between nicely cured oats and oats damaged by mold, sprouting, etc.

Third, that cabbage cannot be grown here successfully if transplanted later than June 15th to 20th. Later planting means loose, underdeveloped heading. Also that it is best to transplant in dry weather, with a hand setting machine that leaves a dry mulch about the plant, with water at the roots. Half my field was set this way this year. The other half with identical soil and fertilizer conditions, is apparently three weeks later in development, though set only three days later in a wet time, by hand setting.

I also learned that the only safe place to use manure that has many weed seeds in it is for top-dressing of meadows. Here the seeds stand no chance with the grass roots already established, and the manure greatly increases the hay crop, and leaves the soil much improved for the crop next in the rotation.

A. J. L., Albion, W. Va.—We planted about two acres of corn where stable manure had been broadcasted and turned under. This was planted to corn and beans with 16 per cent. acid phosphate at rate of about 200 pounds per acre put in the hill and covered with hoe. This corn did well during the early part of the season, but it got very dry in August and the corn suffered badly on account of drought. Another field was planted with drill, fertilizer drilled in with corn. This field, though it did not get as much fertilizer as the other, stood the drought better than the first field.

The corn eared out better where the fertilizer was drilled in. A part of the field had a much deeper soil and was plowed deeper than on the other part. The deeper the soil the better the corn. I have tried putting fertilizer in the hill several times. If the season was wet the fertilizer seemed to do well this way, but with a very dry season the fertilizer in the hill seems to do but little good. We use manure from the poultry house and 16 per cent. acid phosphate mixed for our potatoes, and this seems to be very satisfactory, as our soil does not seem to be especially in need of potash. We have grown a very good crop of potatoes this year—as good as, if not better than, when we used a fertilizer with a high per cent. of potash.

C. C., 2nd, Flanders, N. J. — When there is a good bottom a top-dressing of commercial fertilizer may be put on wheat with a profit. This spring I top-dressed my wheat and I am satisfied that if I hadn't put it on my crop would have been an entire failure. The past winter was very hard on wheat here, but what was left showed a good growth from the fertilizer.

We followed corn with potatoes this year, and I don't see but that they yielded just as well without the 10 per cent. potash. The ground was well manured last year and we used a fertilizer which was supposed to have 1 per cent. potash.

I put corn on a field which had been an alfalfa sod. The soil was as mellow as a garden spot. The corn turned out very well, because the roots of the corn could grow very readily and use up the nitrogen which the alfalfa had deposited. I like an alfalfa sod to turn under better than a clover sod. The alfalfa roots go down deeper and break the soil up better.

C. C. C., Jr., Penn Laird, Va.—We do more and more experimenting each year on various crops to determine the value of the many different fertilizing elements. We are now eliminating some that we once thought we could not farm without, and using more of others that we once thought were of slight value only. We did not miss the potash in our potato crop this year, or in any other crop. We ceased using potash some years ago, having found that our soil gave us as good results without it as with it.

We frequently give our hay a light dressing of manure and generally get excellent results, though this year was an exception to the rule, owing to the extreme dry weather. We plowed down our hay field that was top-dressed and sowed to millet, getting an excellent crop.

We find from experience that lime gives us more for the money than some fertilizers we may apply to our soil. While lime is not considered a direct fertilizer, it is an indirect one and has made conditions right for us to improve our soil more rapidly by growing and plowing down clover and other legumes.

In one field of wheat last season we did some experimenting with acid phosphate that taught us we were using it to excess. The field we did the experimenting in contained 30 acres. Ten acres were given 200 pounds of acid phosphate per acre; another 10 acres were given 250 pounds per acre, and the remaining 10 acres 300 pounds per acre. We had better wheat on the 10 acres given 200 pounds per acre than on the 10 acres given 250 pounds per acre. The 10 acres given 300 pounds per acre I am sure did not yield as much wheat by one-third as the 10 acres given 200 pounds per acre, and the quality no better.

[This result cannot be charged to an excess application of acid phosphate, but is rather the result of the "limiting factor" law. To get maximum crops there must be sufficient nitrogen, potash and phosphoric acid in the soil, and if any of these are deficient the crop will not be correspondingly benefited by an overdose of one or two of the other fertilizing elements. Evidently our subscriber's wheat plants could only find enough potash or nitrogen available in an acre of soil to go with 200 pounds of acid phosphate.—Editor.]

Fertilizers work while you sleep.

The Fate of the Unprepared

Among the remarkable events of this war no fact stands out more startlingly than the tragic sacrifice of Russia's unequipped soldiers.

The army has been victimized by intrigue and treachery. Guns were sent to the front without ammunition and ammunition without guns. Supplies were provided that when unpacked proved to be rubbish. Left stranded by communications that broke down under slight pressure the brave Russian troops hurled themselves again and again against foes perfectly prepared.

From the very verge of victory they doggedly fell back fighting with stones and clubs and iron bars, resisting heroically but ineffectively.

No thought can be more abhorrent to Americans than that of our boys ruthlessly slaughtered because of lack of equipment or support which it is the first business of us at home to supply.

Our Government, never before so powerful, is working prodigiously in the preparation of armies and means of warfare. Throughout the nation there is a unity of purpose that is piling on the altar of liberty every personal ambition and corporate gain.

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FOR OUR BOYS & GIRLS FARM

THE PRACTICAL FARMER P-I-O CLUB

THE MAGIC WORD:
OR LADDIE AND POLLY IN THE COUNTRY

Written especially for this paper by Uncle George, founder of the P. I. O. Club in The Practical Farmer

CHAPTER I.

"Me-ow, me-ow!"

Laddie sat right straight up in bed. The noise of the cat awoke him. For a minute he did not know where he was, but soon remembered that he was in the police station and that Polly, his sister, was in another part of the building waiting for him, or, perhaps, she had not yet awakened. Laddie sighed as he thought of the home he had left, and longed (for only a tiny minutes, it is true) for his mother. His hands were so clean he had to look at them for the second time in order to make out what they were. He had never seen such clean hands before.

"ME-OW!"

"I have it!" exclaimed Laddie, as he suddenly thought of the Magic Word which the fairy had whispered in his ear. "The fairy told me that if I would whisper the Magic Word in the ear of any living thing it would talk to me in a language I could understand. I wonder what 'me-ow' means. Ah! I have it. I must whisper the word in Mrs. Cat's ear before she talks to me. Come here, you fuzzy rascal."

Mrs. Cat was only too happy to jump up on Laddie's bed, where he stroked her hair for a time and then put his lips to her ear and whispered the word which the fairy had given him.

Instantly Mrs. Cat jumped in the middle of the bed.

"Of all things! Laddie, how did you ever get that Magic Word? There isn't a boy in the world, or girl either, for that matter, who has that word. Do you understand me?"

"Why, yes," said Laddie slowly.

"It's just grand to have a little boy to talk to. I have always wished I could talk to a little boy and tell him how much it hurts when my tail is pulled. I'm sure YOU never pull cats' tails, but other boys do and—and—it hurts. I tell you my tail is very important—at least to me. I have four feet and two ears and two eyes, but only one tail. I'm proud of that. It hurts when boys pull it. Hurts my pride, I mean."

"I understand," said Laddie.

"So glad you do, for then you can tell the other boys you meet what a dreadful thing it is for boys to pull cats' tails. Now, what is it I can tell you? So long as you have the Magic Word you may as well talk to me first of all and then you can talk to the other animals when you meet them. You are going to a farm and there you will find a lot of delightful animals and you will have lots and lots of good times talking to them. Mrs. Cow will tell you all about herself and—"

"What's a cow?" asked Laddie.

"Oh, dearie me!" exclaimed Mrs. Cat. "I forgot that you are a city boy and that you don't know much about cows. Do you know what milk is?"

"I've seen some once or twice—I've seen a lot of milk bottles, but we very seldom have milk where I live—where I used to live. Do—do cows give condensed milk? We had that sometimes as a big treat." Laddie looked up at Mrs. Cat.

"Suppose you ask Mrs. Cow some of those queer questions you have in your curly head," suggested Mrs. Cat. "I can only tell you about myself. You must hurry, too, for it will soon be time for your sister to come along and then you must go in and see the judge. Have you ever been before a judge?"

"No, I never have," replied Laddie.

"Well, when you get in there you must not say anything, just keep quiet." Mrs. Cat looked very wise.

"But tell me, can I understand the language of all the animals and birds when I know the Magic Word?" asked Laddie.

"Sh-h-h! Never doubt a fairy. They always speak the truth. Can't you talk to me? That is enough."

Laddie's eyes began to get bigger and bigger. "If a mouse comes along, can I talk to it?" he asked.

"Who said MOUSE?" exclaimed Mrs. Cat, as she jumped off the bed and scampered all over the room, landing at last on the bed.

"I merely asked about a mouse," said Laddie, with a laugh.

"Well, don't frighten me again. I thought there was a mouse in the room and I need something to eat. Tell me, is there anything about me—about a cat I can tell you? With the Wagic Word you can learn things about animals that no one knows."

"I should like to know why you have whiskers," ventured Laddie.

"Well, well! To think they do not teach you that in school. My dear, when you see a cat start into a hole and then run out, you may know that she has found a hole that is too small and—"

"I know—I know," shouted Laddie. "Her whiskers are to tell her when the holes are too small and she cannot get in them."

"Right you are, my boy," replied Mrs. Cat, who was quite pleased to think her new-found friend was so wisely informed about cats.

"There is one thing more I should like to ask," said Laddie. "When boys throw cats up in the air, they always come down on their feet—why is that?"

"You mean the boys always come down on the cats?"

"The cats of course," answered Laddie.

"I'll tell you," began Mrs. Cat. But just at that minute the door opened and Mrs. Cat flew out. It was not long before Laddie had the surprise of his life.

(To be continued.)

Dear Boys and Girls:

One of the brightest letters I got—WHOA, there!

I forgot the most important thing I was going to talk to you about this very minute—OUR BUTTONS. Ever since the world began people have adorned themselves with buttons and emblems and pins and so on. Perhaps daddy has one—ask him.

Well, I said a tiny bit last week about our beautiful buttons, but I didn't say HALF enough. They are hummers—they are dandies. The more I look at my own button the more I wonder how WE (that's the whole office, assisted by your Uncle George) could ever have thought of such a beautiful button.

Where does our light, heat and life come from? You little boy on the back seat tell us.

"From the sun. IT'S on our button."

That's right. What a lot of bright boys and girls we have anyway. Well, what colors would you think best to have on a button for farm boys and girls? Red, yellow and brown. Yes, they are the best colors and you will find them on your Uncle George's buttons.

I want every boy and girl in the Middle Atlantic States to have one of these buttons. They must live on farms, of course, to be members of our beautiful and wonderful club which is growing by leaps and bounds.

There is nothing flashy about our pins, they are beautiful in their simplicity. BUT you can bet the rest of the boys and girls around you will see that you have a P. I. O. button on!

Send in your pledge NOW, or copy it on a piece of paper and send it in a letter or put it on a postal. I'll write you at once.

Let's see, what WAS I talking about? Oh, yes! I started to say, one of the brightest letters I received was from a young lady who was very much interested in "the little telephone" I was talking to you about the time before last when our club met (on paper).

You see, I call our conscience "the little telephone." Then there is another telephone which tells my fingers what letters to strike. Sit down yourself and write "Uncle George." Is it not the telephone inside you which bids you put those letters down right? Why don't you write "Uncle Bill," or something else? Because your telephone is doing as you bid it—it is working in the right way.

I want you to make your conscience work rightly, and in order to do this I want you to say to yourself when the words you do not like come over the little telephone, "Get off the wire. You have the wrong number."

All through life you will find evil thoughts and unkind thoughts trying to get into your head and out of your mouth. Please kick them out the same way you kick a pig or a bat out of your home. Your heart and mind are your palaces and they must be kept sweet for the good fairies who are nothing more nor less than beautiful thoughts.

Just one word more—I must tell you that our correspondent has called attention to the MOTOR inside us, which might be our MOTIVE, or it might be our CHARACTER. What is it that makes us different from a chicken or a hog? What keeps us going and makes us do right? Tell me what YOU think.

More of this in our next number.

Always your

Uncle George

ANSWERS TO PUZZLES IN NOV. 15 ISSUE.

1. Can-did-ate. 2. Came changes to mace. 3. Hornets. Shorten.

QUESTIONS.

1. Ever see a hop toad? Well, once a dear little hop toad jumped five times. each time he changed a letter, only one letter, and jumped from DINT to Tint. (Example: Tie, Pie. T is changed to P.) How did the jolly hop toad do it?

2. I have 7 letters. My first three are a series of battles going on in Europe. My last four letters are to be noisy and boisterous in talk. Altogether, I am what a man has read to him when he is arrested. Guess me.

3. Our office boys are very clever. One of them says he bets a match to a hairpin that you can't guess this riddle. I don't bet and I know you don't, BUT can you answer this: "What kind of vegetable grows on some people's feet?"

HONOR ROLL

The following is a list of those who have answered our puzzles in the best manner up to date. See that YOUR name is here next time. It will help you to THINK if you will only TRY to answer our puzzles.

Emma A. Saul, N. J.
Sara E. Welliver, Pa.
Molly E. Coates, Va.
Marie Hetzsch, Md.
Lester W Harrison, Md.
James Oliver Jacobs, Pa.
James Harold Kirwan, N. Y.
Joseph Bauer, Del.

P. I. O. CLUB NEWS

I have had a talk with our Editor and he says "No!" but all the same I am going to ask him again to let me send an American flag to that school in the Middle Atlantic States which has the most P. I. O. members before Dec. 15th. Won't it be grand to hang out a flag and say that it is a Christmas present from Uncle George of The Practical Farmer? I think so, and if you do, too, write and tell me how many members there are in YOUR school when Dec. 15th comes, so that we may send the flag to you as soon as the decision is made. I think I can get our Editor to do this, if you will write me a letter telling me what you think of the idea. If you have a new flag and would like something else, just let me know what it is and I will whisper it in the Editor's ear and MAKE him get it for you. (I hope he doesn't see this!)

Just a thought: MAKE THIS THE HAPPIEST CHRISTMAS YOU EVER HAD. SEND ME ONE POSTAL CARD WITH YOUR NAME AND ADDRESS ON IT AND I WILL SEND IT TO ANOTHER P. I. O. MEMBER AND SEND YOU ONE IN RETURN. This will make some one happy whom you have never seen. This is a wonderful idea, don't you think so? UNCLE GEORGE.

PLEDGE. 4

Dear Uncle George:

I promise to P. I. O. if it does not interfere with my conscience or my duty to my parents and friends. Please tell me the key to the secret of P. I. O., which I will not reveal except to brother and sister members of the P. I. O. Club.

(Name*).....

(Address) P. O..... R. F. D.....

Age..... State.....

*Write or print your name plainly and don't forget to dot your I's and cross your T's. Address all letters to UNCLE GEORGE, care Practical Farmer, Box 1321, Phila., Pa

The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

DECEMBER 15.—Christmas candies, cakes and pies. All of us will be looking for something good and out of the ordinary for topping off the Christmas dinner or holiday festivities. Tell us how you make some of these things and any special way you have of serving them.

JANUARY 1.—In what ways can we improve The Practical Farmer for 1918? What features in it do you and your "men folks" like best and which ones don't you like? Give us your honest opinion in not more than 250 words, and while we cannot promise to do all you suggest we will seriously consider all ideas.

JANUARY 15.—How do you satisfy the desire for music on the farm? What class of music do you prefer?

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

Suggestions for Christmas Gifts

Mrs. M. W. P., Fairplay, Md.—I find quite a number of farm products make acceptable Christmas gifts to friends who are not situated to grow them, and they much prefer them to anything we could buy. I make use of parcel post, and have sent butter, eggs, dressed chicken, cake, home-made candy, dried fruit, cured ham and other products. A box of walnut or hickorynut meats picked out ready for use for cake or candy makes a very acceptable gift; the cost is work and postage.

Dressed chicken I clean and cool before packing. I find wax paper fine for wrapping most things before placing them in the box. For my boxes that go from the third to the sixth zone, instead of using so much paper to wrap them, I make a cover of cheap muslin, sew it up on the machine to fit the length of the box, allowing enough goods to fold over the ends and tie same as paper. I write the address on the muslin with indelible pencil, then lay a damp paper carefully over it to set the color. I also paste the address written on paper—for and from. I always write the address on the boxes also, so if the wrapper is torn it is still in shape to be received. I have sent slices of choice cured ham as far as the sixth zone. To others I give apples, crocks of pudding, tenderloin, sausage—in fact, there is hardly a limit to find something suitable for those who do not live on a farm. Last year we wanted to give our minister two sacks of corn for his horse, so made two sacks of cheese cloth 1x2 inches, with a grain of corn in each, and mailed to him for his Christmas gift, and said: "Two sacks of corn here for you when you come after them." The joke was enjoyed as much as the gift. I found a box of thread of different numbers of black and white very lasting and useful. A pack of stamped envelopes, with "Please return one occasionally," or stamps make a jolly gift for a girl by writing on the outside, "Don't lick this man's picture," or "No good if you keep them." For this year's Christmas gifts, when our soldiers and allies need help and cheer, more than our grown-up home folks, instead of fancy work we have decided to give that time and money to Red Cross work, and send boxes of eats or stamps as often as we can to the boys in the camps

Mrs. J. E. M., New Milford, Pa.—Here is a list of some Christmas gifts we have planned to send: When chestnuts are first gathered, put in quart fruit jars with a handful of salt; put on cover and shake well to mix salt. They will remain as if freshly gathered a long time, and can be packed in boxes with candy.

I make little cakes of maple sugar in patty tins, making some in heart-shaped tins and putting two together with a loop of narrow ribbon put between.

Popped corn put through a food chopper and a syrup like fudge made and stirred into it well and packed in shallow pans until cold and then cut into squares.

Mother always wraps two or four cards of honey in white paper, then in a strong wrapping paper and sends them as gifts.

My sister makes several kinds of nice candy which she packs in boxes and sends as gifts.

Mrs. S. M. J., Kentwood, La. — In making Christmas presents I first remember the little children, then the aged, the sick and the worthy poor. I never make a present because I expect one from the recipient, nor one that the giver's good will does not go with. I prefer gifts made with my own hands and try to give something the recipient is especially fond of, or has a need for. A grandmother spent the day with me recently, bringing her patchwork in a shoe box. Every time she needed her thread or thimble she had to fumble about under the scraps to find it. As soon as she left I hurried to gather willows to weave for her a neat oval basket, with handle long enough to carry over her arm. I will fit a tiny cushion and some pockets inside, and put in a roll of scraps.

I save cardboard boxes, cover with holly paper and fill with nuts and fruits from our orchard, and home-made candies and cakes for the children in a nearby mill town. I save clear, wide-mouthed bottles to fill with jellies for sick and old folks. A basket of fruit, a big pumpkin or Cashaw decorated with a holly branch and Christmas card, a box of parsley for the kitchen window, a jar of hulled corn, a dressed bird or chicken, are all appropriate for the housekeeper who lives in town. I have potted a couple of tulips which I hope to have budding by Christmas for a little invalid girl who loves flowers and growing things. I will cover the pot with crepe paper.

E. M. B., Hillsdale, Mich. — Canned fruits and vegetables, jellies and preserves, even such plebian things as turnips and potatoes, will make very acceptable Christmas gifts this year. Do them up in attractive packages and if possible, add a little verse. Stint yourself beforehand but be sure to give the soldier boys the sweets which they crave and are denied at camp. Dried cherries are delicious and inexpensive. To make, drain the juice from a can of cherries, spread on plates and dry carefully, changing to a dry plate every day. If they were made sweet in canning, they will hardly need any more sugar. If not, put in a heavy syrup and let simmer but not boil for a few minutes. When they are hard and dry, put in tin boxes lined with parchment paper. A little verse might be added:

Just a bit of summertime—
Hope you'll like them, too,
And I'm sending with this gift
Some Christmas cheer to you.

Nuts or nut meats in attractive packages make nice gifts. Include in the gifts for the city friends, some bittersweet or Northern holly, and see how delighted they will be. Spice apples make a very delightful sachet. I have never made any, but judging from the looks and smell, would think they were merely a medium sized apple stuck as full as possible with whole cloves. I expect to make a number for my gifts. Decorated with a bit of holly, placed in a fancy box and accompanied by a little verse, they sell for a dollar each in novelty shops.

Mrs. J. B. B., Coudersport, Pa. — I think from the amount of canning and preserving done in the United States this year, that no one will send jellies or jams as presents, even to city friends, whose store closets often present a greater variety than those of the country women who spend time to gather their fruit from the vines and trees.

But there are other gifts which may be acceptable. A little girl wishing to find something original, gathered beech-nuts, shelled, blanched and salted them as almonds are prepared, and wrapped them in a Japanese napkin with an inside fold of paraffine paper.

Another girl pleased a favorite uncle who had an open fire-place, with a bag of pine cones for the winter blaze.

Candy is always an appropriate gift. A good receipt is 2 cupfuls of granulated sugar, 1 cupful of sweet cream, ¼ pound of raisins, 1 cupful of finely chopped peanuts and ¼ pound of seeded dates, boiled until the candy forms a soft ball in cold water, beaten until creamy, poured on a buttered platter, cut in squares and packed in paraffine paper.

Sachets of dried lavender blossoms are welcomed in the linen closet, pillows filled with pine needles or clover blossoms and rose leaves, rose beads for young ladies. A package of herbs for the kitchen—dried sage, mint, thyme, summer savory and tarragon, seeds of dill, caraway and coriander will please any housewife not abundantly supplied with them. Wrap all packages which have to be mailed in stout manilla paper.

Miss J. M. G., Buchanan, Va.—Aprons and morning caps (crocheted or otherwise) have proved so popular as gifts in the past, that I am planning more of them, as my friends let me understand they would like duplicates at any time. Remnants or left-overs of lightweight silks, lawns or any dainty material are suitable for caps and the fancy aprons, and scraps of lace, insertion, embroidery, etc., used as insets, or other style of trimming, give the individual touch. One can get suggestions as to varied styles, designs, trimmings, etc., by looking at such articles in the stores when in town, or from pictures in the magazines or mail order catalogues. Clothes-pin aprons, sewing aprons, and indeed work aprons of all sorts, made of suitable material, bring warm words of appreciation if one is careful to fit the kind to the circumstances and needs of the recipients, while the dainty caps are welcomed by every feminine friend.

Three-yard lengths of any sort of handmade trimming make acceptable gifts, as do handkerchiefs, always, if a narrow edging or other bit of hand-work trims them.

Trees or any other evergreens, bright berries—anything suitable for decorating the house or table, may be sent from the farm to the city friend, but should go early, that she may not have already made provision for such things.

Mrs. B. B., Dewittville, N. Y. — In these days of our nation's need I am trying to use what I have for Christmas gifts. For dear old grandma, knitting for the Red Cross, I will make a knitting bag—not one of the gay cretonne—she would never carry that—but of some gray brocaded silk left from an ancient waist. For the wee toddlers I have a book of cards and fancy pictures pasted on blue paper cambric. For the busy little mother, who loves dainty hand work and has so little time, some pillow cases with scalloped edges finished with crochet and a square inset of filet crochet, with initial in solid stitch. For the

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Write for list of installations which you can inspect in your own neighborhood.

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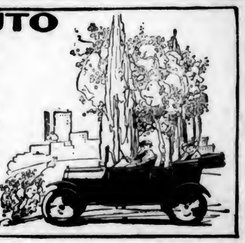

In the picture are hidden a number of faces. How many can you find? Some are looking right at you, others show only the side of the face—you'll find them upside down and every way. Mark each face you find with a pencil, clip out picture, send to us with name and address NOW. We will give away a $360.00, 1917 Model, Ford Touring Car, as First Grand Prize, and Thousands of Dollars in Cash Rewards, Prizes and Special Premiums. Each worker gets a prize. Solve the puzzle. If you can find as many as FIVE FACES we will send you immediately toward the $360.00 Ford Automobile and other Grand Prizes.

1000 Free Votes

We will also give away several 1918 model Coaster Brake $40.00 Bicycles. These will be given free and extra, regardless of who gets the Ford Auto. Someone will get automobile. WHY NOT YOU?

FARM LIFE, Dept. 111 SPENCER, IND.

man of the house I shall buy the warmest wool mittens I can find and sew some fur to backs of hand and thumb and put on gauntlet wrists, all of the best part of an old fur set. For daughter I am piecing a silk quilt. For a friend that I know will appreciate it, a hop pillow covered with thin washable silk—some more pieces. For the little girlie who loves paper dolls, I have procured a very large, stout book which one time was filled with tailors' samples. This can be put one side against a wall or chair, representing the wall of a room, while the other page represents a floor or lawn, as is desired. All the colored furniture, rugs, pictures, automobiles, a stable with animals, barnyard, poultry run, kitchen, dining room, parlor, sleeping rooms and nursery—all can be accommodated in this mansion. I shall add a bottle of prepared paste and it will keep her spare time busy all winter.

For the wealthy family, on each of their annual visits for several years, the man of the house has said, "Anna, why can't we have such a pillow as this?" It is a little round 12-inch pillow filled with down and has two circles of white thread crochet laced together for an outside cover. So this year they shall have one. But "eggs is eggs," and butter is 50 cents a pound. I shall sell mine and let my city friends buy oleo or egg-save and give them something to keep, instead of just stuff we raised that they will feast on and may be forget I made them any present.

Mrs. D. L. T., Fine Creek Mills, Va.—What shall I give for Christmas gifts? This is always a vexed question, but as the years go by I am more and more convinced that practical gifts are most acceptable. Perhaps the reason for this is, there is not as much time left for this class of work as formerly, and these plainer gifts fill a real need. However, the personal touch can be given to the least attractive gift, if one has a supply of crepe and tissue paper, cord, ribbon, cards and seals. These add much to the festive appearance of the package.

For relatives and friends who live in the country, I make some article of underwear, made dainty with ribbon and lace.

For my city friends the country products offer innumerable gifts from which to select. If I am offering a gift to one who keeps house I send a turkey, ham, butter, eggs, fruit, jelly, graham flour, water-ground meal, or anything that I would like in my own housekeeping. To children I send apples, pop corn, peanuts, black walnuts and boxes of home-made candy. If my friends are young girls, I send a box of mistletoe, or one of pine, holly and running cedar. These are just a few of the things I have sent to various friends, but each article has been carefully put up either in paper or a box, and tied with ribbon, or sealed with Christmas seals.

It makes the gift seem a little different to write an appropriate wish on the card sent with the gift. But of all the gifts I send, I think the ones sent to my dear far-away friends must give most pleasure—they are just letters, brimful of talk of friends and places they used to know.

E. O. J., Woodlawn, Md. — Crochet fillet letters for towels and scarfs. They cost little money and are in excellent taste. A small emergency sewing bag for the bed room is a dear little gift. Make with a round bottom about 3 inches in diameter and gather the goods on. It should be about 4 inches deep. Put in baby ribbon at top for drawing string and hanger. This may be fitted with sewing implements. While one is dressing a button may be missed—hence the value of a handy bag.

A cretonne best napkin bag is invaluable. Use strips of material about 26 inches long by 7 inches wide. Lay the middle of one (after hemming each strip) on the middle of the other, so that they cross. Then sew together 5 inches up from each corner. Lay back the top of each end so as to make a point. Fasten with snap and eye. A bow of ribbon adds a dainty touch. Cover with any white material a square of pasteboard that fits the bottom. Lay this on.

To the city friend give a bowl of partridge berries, a fragrant balsam pillow or something from your winter's store—six glasses of favorite jelly with a merry verse, pine and crowfoot for the festive touch, a jar of whole pickles, or preserves. I shall pack a dozen small glasses of jelly and jam for an invalid friend, using for yuletide coloring small Lady apples, pine cones and crowfoot.

Miss E. H. R., Beulahville, Va.—A busy country woman with no time for elaborate fancy work, my Christmas gifts are homely, practical and original. Our woods are full of beautiful things from nature's hand. Ground pine, running cedar, holly, mistletoe, with box from the old garden, cost the giver nothing but pleasure, packing and postage, and delight the city dweller.

I save all fancy candy boxes. These at Christmas are filled with my own candies, sometimes ten different kinds, packed in layers with oiled paper between.

My city sister will get this year a box containing the following, gotten up in approved Christmas style: A ham, fresh sausage and spare rib, "cracklings," a jar each of apple butter, mincemeat and pickle, a fruit cake, dark red Winesaps and a plentiful supply of our well beloved shellbarks, which are large, fine and meaty, but so thin they can be cracked with nut crackers. All available spaces will be filled with evergreens.

If you give bulbs, don't wait until Christmas to give dry bulbs. It will be then too late for winter blooming, with all but the Chinese Paper White narcissus. This is of very quick growth, but all other bulbs should be started early in pans of earth or fiber, bowls of water and rocks, or hyacinth glasses.

Kodak pictures, hand colored, mounted on white cardboard and pretty ribbon, make dainty book marks; as a decorative feature for calendars and blotters they can be used in as many ways as your ingenuity suggests, while to the absentee a book of home scenes will bring joy untold.

Home-made plum puddings are always acceptable.

For the children I make hickorynut dolls. The nut forms the head, with a queer little face drawn on the "nose" end. A bit of wool for hair under the white cap, dark dress, white apron and kerchief and you have the quaintest little negro mammy to delight the little ones.

1917 PUMPKIN PIE.—1 cupful molasses, 1 quart cooked pumpkin, grated peel 1 lemon, ½ teaspoonful each nutmeg, cloves and cinnamon, 4 eggs. Heat the molasses and stir into the pumpkin; add the seasoning and beaten yolks of the eggs. Mix well; add the stiffly beaten whites of the eggs. Bake in a pudding dish. Serve cold. Mashed sweet potato may be used in place of the pumpkin if thinned with 1½ cupfuls of milk.

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8543.—Ladies' waist. Cut in sizes 34, 36, 38, 40, 42 and 44 inches bust measure. This waist has the Quaker collar and pointed cuffs. The sleeves are set in without fullness and have flaring turn-overs.

8558.—Boys' Russian suit. Cut in sizes 2, 4 and 6 years. This suit has the Russian blouse, and a large round collar is comfortable and boyish looking.

8538.—Misses' and small women's dress. Cut in sizes 16, 18 and 20 years. The skirt is four-gored.

8535.—Children's one-piece dress. Cut in sizes 2, 4 and 6 years. The lower part of the dress is brought in to fit the yoke in three box-plaits.

8522.—Ladies' slip-on waist. Cut in sizes 36, 38, 40 and 42 inches bust measure. This waist is to be slipped on over the head.

8556.—Ladies' one-piece dress. Cut in sizes 36, 38, 40 and 42 inches bust measure. The front of the dress is gathered to the U-shaped neck.

8555.—Girls' coat. Cut in sizes 2, 4, 6, 8, 10, 12 and 14 years. The lower part of this coat is all in one piece.

8544.—Ladies' four-gored skirt. Cut in sizes 24, 26, 28, 30 and 32 inches waist measure. The large pockets with envelope flaps for trimming add an interesting touch.

8531.—Girls' long-waisted dress. Cut in sizes 6, 8, 10 and 12 years. The skirt is in one piece, and the bloomers are separate.

8541.—Ladies' one-piece dress. Cut in sizes 36, 38, 40 and 42 inches bust measure. The front edgs of the dress are rolled back to form revers.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA

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The Light in the Clearing

A Tale of the North Country in the Time of Silas Wright

By IRVING BACHELLER

Author of Eben Holden, D'ri and I, Darrel of the Blessed Isles, Keeping Up With Lizzie, etc.

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CHAPTER II

I MEET THE SILENT WOMAN AND SILAS WRIGHT, JR.

Amos Grimshaw was there in our dooryard the day that the old ragged woman came along and told our fortunes—she was called Rovin' Kate, and was said to have the gift of "second sight," whatever that may be. It was a bright autumn day and the leaves lay deep in the edge of the woodlands. She spoke never a word but stood pointing at her palm and then at Amos and at me.

I was afraid of the old woman—she looked so wild and ragged. I have never seen a human being whose look and manner suggested a greater capacity for doing harm. Yet there was a kindly smile on her tanned face when she looked at me. Young as I was, the truth came home to me, somehow, that she was a dead but undeparted spirit and belonged to another world. I remember the tufts of gray hair above her blue eyes; the mole on the side of her aquiline nose; her pointed chin and small mouth. She carried a cane in her bony right hand and the notion came to me that she was looking for bad boys who deserved a cudgeling.

Aunt Deel nodded and said:

"Ayes, Kate—tell their fortunes if ye've anything to say—ayes!"

She brought two sheets of paper and the old woman sat down upon the grass and began to write with a little stub of pencil. I have now those fateful sheets of paper covered by the scrawls of old Kate. I remember how she shook her head and sighed and sat beating her forehead with the knuckles of her bony hands after she had looked at the palm of Amos. Swiftly the point of her pencil ran over and up and down the sheet like the movements of a frightened serpent. In the silence how loudly the pencil seemed to hiss in its swift lines and loops.

My aunt exclaimed "Mercy!" as she looked at the sheet; for while I knew not, then, the strange device upon the paper, I knew, by and by, that it was a gibbet. Beneath it were the words: "Money thirst shall burn like a fire in him."

She rose and smiled as she looked into my face. I saw a kind, gentle glow in her eyes that reassured me. She clapped her hands with joy. She examined my palm and grew serious and stood looking thoughtfully at the setting sun.

I see, now, her dark figure standing against the sunlight as it stood that day with Amos in its shadow. What a singular eloquence in her pose and gestures and in her silence! I remember how it bound our tongues—that silence of hers! She covered her eyes with her left hand as she turned away from us. Slowly her right hand rose above her head with its index finger extended and slowly came down to her side. It rose again with two fingers showing and descended as before. She repeated this gesture until her four bony fingers had been spread in the air above her. How it thrilled me! Something jumped to life in my soul at the call of her moving hand. I passed a new gate of my imagination, I fancy, and if I have a way of my own in telling things it began that moment.

The woman turned with a kindly smile and sat down in the grass again and took the sheet of paper and resting it on a yellow-covered book began to write these words:

"I see the longing of the helper. One, two, three, four great perils shall strike at him. He shall not be afraid. God shall fill his heart with laughter. I hear guns, I hear many voices. His name is in them. He shall be strong. The powers of darkness shall fear him, he shall be a lawmaker and the friend of God and of many people, and great men shall bow to his judgment and he shall—"

She began shaking her head thoughtfully and did not finish the sentence, and by and by the notion came to me that some unpleasant vision must have halted her pencil.

Aunt Deel brought some luncheon wrapped in paper and the old woman took it and went away. My aunt folded the sheets and put them in her trunk and we thought no more of them until—but we shall know soon what reminded us of the prophet woman.

The autumn passed swiftly. I went to the village one Saturday with Uncle Peabody in high hope of seeing the Dunkelbergs, but at their door we learned that they had gone up the river on a picnic. What a blow it was to me! Tears flowed down my cheeks as I clung to my uncle's hand and walked back to the main street of the village. A squad of small boys jeered and stuck out their tongues at me. It was pity for my sorrows, no doubt, that led Uncle Peabody to take me to the tavern for dinner, where they were assuaged by cakes and jellies and chicken pie.

When we came out of the tavern we saw Benjamin Grimshaw and his son Amos sitting on the well curb. Each had a half-eaten doughnut in one hand and an apple in the other. I remember that Mr. Grimshaw said in a scolding manner which made me dislike him:

"Baynes, I'm glad to see you're so prosperous. Only the rich can afford to eat in taverns. Our dinner has cost us just three cents, an' I wouldn't wonder if I was worth about as much as you are."

My uncle made no reply and we passed on to a store nearly opposite the well, where I became deeply interested in a man who had tapped me in the stomach with his forefinger while he made a sound like the squealing of a rat. Then he said to Uncle Peabody:

"Look at that man out there by the well! He's the richest man in this section o' country. He owns half o' this village. I wouldn't wonder if he was worth fifty thousand dollars at least. What do ye suppose he spent for his dinner?"

"Three cents," said my uncle.

"Guess again—it was a cent and a half. He came in here and asked how much were the doughnuts. I told him they were a cent apiece. He offered me three cents for four of them—said it was all the change he had. He and his boy are eating them with some apples that they had in their pockets."

I remember how my uncle and the man laughed as the latter said: "His wealth costs too much altogether. 'Tain't worth it'—a saying which my uncle often quoted.

Thus early I got a notion of the curious extravagance of the money worshiper. How different was my uncle, who cared too little for money!

At Christmas I got a picture-book and forty raisins and three sticks of candy with red stripes on them and a jew's-harp. That was the Christmas we went down to Aunt Liza's to spend the day and I helped myself to two pieces of cake when the plate was passed and cried because they all laughed at my greediness. It was the day when Aunt Liza's boy, Truman, got a silver watch and chain and her daughter Mary a gold ring, and when all the relatives were invited to come and be convinced, once and for all, of Uncle Roswell's prosperity and be filled with envy and reconciled with jelly and preserves and roast turkey with sage dressing and mince and chicken pie. What an amount of preparation we had made for the journey, and how long we had talked about it! When we had shut the door and were ready to get into the sleigh our dog Shep came whining around us. I shall never forget how Uncle Peabody talked to him.

"Go back, Shep—go back to the house an' stay on the piaz," he began. "Go back I tell ye. It's Christmas day an' we're goin' down to ol' Aunt Liza's. Ye can't go way down there. No, sir, ye can't. Go back an' lay down on the piaz."

Shep was fawning at my uncle's foot and rubbing his neck on his boot and looking up at him.

"What's that ye say?" Uncle Peabody went on, looking down and turning his ear as if he had heard the dog speak and were in some doubt of his meaning. "Eh? What's that? An empty house makes ye terrible sad on a Chris'mas day? What's that? Ye love us an' ye'd like to go along down to Aunt Liza's an' play with the children?"

It was a clever ruse of Uncle Peabody, for Aunt Deel was softened by his interpretation of the dog's heart and she proposed:

"Let's take him along with us—poor dog! ayes!"

Then Uncle Peabody shouted:

"Jump right into the sleigh—you ol skeezucks!—an' I'll cover ye up with a hoss blanket. Git in here. We ain't goin' to leave nobody alone on Chris'mas day that loves us—not by a jugful—no sir! I wouldn't wonder if Jesus died for dogs an' hosses as well as for men."

Shep jumped in the back of the sleigh at the first invitation and lay quietly under his blanket as we hurried along in the well-trod snow and the bells jingled. It was a joyful day and old Shep was as merry and well fed as the rest of us.

How cold and sad and still the house seemed when we got back to it in the evening! We had to drive to a neighbor's and borrow fire and bring it home with us in a pail of ashes as we were out of tinder. I held the lantern for my uncle while he did the chores and when we had gone to bed I fell asleep hearing him tell of Joseph and Mary going to pay their taxes.

In the spring my uncle hired a man to work for us—a noisy, brawny, sharp-featured fellow with keen gray eyes, of the name of Dug Draper. Aunt Deel hated him. I feared him but regarded him with great hope because he had a funny way of winking at me with one eye across the table and, further, because he could sing and did sing while he worked—songs that rattled from his lips in a way that amused me greatly. Then, too, he could rip out words that had a new and wonderful sound in them. I made up my mind that he was likely to become a valuable asset when I heard Aunt Deel say to my Uncle Peabody:

"You'll have to send that loafer away, right now, ayes I guess you will."

"Why?"

"Because this boy has learnt to swear like a pirate—ayes—he has!"

Uncle Peabody didn't know it but I myself had begun to suspect it, and that hour the man was sent away, and I remember that he left in anger with a number of those new words flying from his lips. A forced march to the upper room followed that event. Uncle Peabody explained that it was wicked to swear—that boys who did it had very bad luck, and mine came in a moment. I never had more of it come along in the same length of time.

One day in the spring when the frogs were chanting in the swamp land, they seemed to be saying, "Dunkelberg, Dunkelberg, Dunkelberg, Dunkelberg," from morning to bedtime. I was helping Uncle Peabody to fix the fence when he said:

"Hand me that stake, Bub. Don't be so much of a gentleman."

I handed the stake to him and then I said:

"Uncle Peabody, I want to be a gentleman."

"A gentleman!" he exclaimed as he looked down at me thoughtfully.

"A grand, noble gentleman with a sword and a gold watch and chain and diamonds on," I exclaimed.

He leaned against the top rail of the fence and looked down at me and laughed.

"Whatever put that in your head?" he asked.

"Oh, I don't know—how do you be it?" I demanded.

"They's two ways," said he. "One is to begin 'fore you're born and pick out the right father. T'other is to begin after you're born and pick out the right son. You can make yourself whatever you want to be. It's all inside of a boy and it comes out by and by—swords and gold and diamonds, or rags an' dirt an' shovels an' crowbars."

I wondered what I had inside of me.

"I guess I ain't got any sword in me," I said.

"When you've been eating green apples and I wouldn't wonder," he answered as he went on with his work.

"Once I though I heard a watch tickin' in my throat," I said hopefully.

"I don't mean them things is really in ye, but the power to git 'em is in ye," said Uncle Peabody. "That's what I mean—power. Be a good boy and study yer lessons and never lie, and the power'll come into ye jest as sure as you're alive."

I began to watch myself for symptoms of power.

After I ceased to play with the Wills boy Uncle Peabody used to say, often, it was a pity that I hadn't somebody of my own age for company. Every day I felt sorry that the Wills boy had turned out so badly, and I doubt not the cat and the shepherd dog and the chickens and Uncle Peabody also regretted his failures, especially the dog and Uncle Peabody, who bore all sorts of indignities for my sake.

In the circumstances I had to give a good deal of time to the proper education of my uncle. Naturally he preferred to waste his time with shovels and rakes. But he soon learned how to roll a hoop and play tag and ball and yard off and how to run like a horse when I sat on his shoulders. It was rather hard on him, after his work in the fields, but he felt his responsibility and applied himself with due diligence and became a very promising child. I also gave strict attention to his talent for story-telling. It improved rapidly. Being frank in my criticism he was able to profit by all his failures in taste and method, so that each story had a fierce bear in it and a fair amount of growling by and by. But I could not teach him to sing, and it was a great sorrow to me. I often tried and he tried, but I saw that it wasn't going to pay. He couldn't make the right kind of a noise. Through all this I did not neglect his morals. If he said an improper word—and I regret to say that he did now and then—I promptly corrected him and reported his conduct to Aunt Deel, and if she was inclined to be too severe I took his part and, now and then, got snapped on the forehead for the vigor of my defense. On the whole it is no wonder that Uncle Peabody wearied of his schooling.

One day, when Uncle Peabody went for the mail he brought Amos Grimshaw to visit me. I had not seen him since the day he was eating doughnuts in the village with his father. He was four years older than I—a freckled, red-haired boy with a large mouth and thin lips. He wore a silver watch and chain, which strongly recommended him in my view and enabled me to endure his air of condescension.

He let me feel it and look it all over and I slyly touched the chain with my tongue just to see if it had any taste to it, and Amos told me that his grandfather had given it to him and that it always kept him "kind o' scairt."

"Why?"

"For fear I'll break er lose it an' git licked," he answered.

We went and sat down on the hay together, and I showed him the pennies I had saved and he showed me where his father had cut his leg that morning with a blue beech rod.

"Don't you ever git licked?" he asked.

"No," I answered.

"I guess that's because you ain't got any father," he answered. "I wish I hadn't. There's nobody so mean as a father. Mine makes me work every day an' never gives me a penny an' licks me whenever I do anything that I want to. I've made up my mind to run away from home."

After a moment of silence he exclaimed:

"Gosh! It's awful lonesome here! Gee whittaker! this is the worst place I ever saw!"

I tried to think of something that I could say for it.

"We have got a new corn sheller," I said rather timidly.

"I don't care about your corn shellers," he answered with a look of scorn.

He took a little yellow paper-covered book from his pocket and began to read to himself.

I felt thoroughly ashamed of the place and sat near him and, for a time, said nothing as he read.

"What's that?" I ventured to ask by and by.

"A story," he answered. "I met that ragged ol' woman in the road t'other day an' she give me a lot of 'em an' showed me the pictures an' I got to readin' 'em. Don't you tell anybody 'cause my ol' dad hates stories an' he'd lick me 'til I couldn't stan' if he knew I was readin' 'em."

I begged him to read out loud and he read from a tale of two robbers named Thunderbolt and Lightfoot who lived in a cave in the mountains. They were bold, free, swearing men who rode beautiful horses at a wild gallop and carried guns and used them freely and with unerring skill, and helped themselves to what they wanted.

He stopped, by and by, and confided to me the fact that he thought he would run away and join a band of robbers.

"How do you run away?" I asked.

"Just take the turnpike and keep goin' toward the mountains. When ye meet a band o' robbers give 'em the sign and tell 'em you want to join."

He went on with the book and read how the robbers had hung a captive who had persecuted them and interfered with

their sport. The story explained how they put the rope around the neck of the captive and threw the other end of it over the limb of a tree and pulled the man into the air.

He stopped suddenly and demanded: "Is there a long rope here?"

I pointed to Uncle Peabody's hay rope hanging on a peg.

"Let's hang a captive," he proposed.

At first I did not comprehend his meaning. He got the rope and threw its end over the big beam. Our old shepherd dog had been nosing the mow near us for rats. Amos caught the dog, who, suspecting no harm, came passively to the rope's end. He tied the rope around the dog's neck.

"We'll draw him up once—it won't hurt him any," he proposed.

I looked at him in silence. My heart smote me, but I hadn't the courage to take issue with the owner of a silver watch. When the dog began to struggle I threw my arms about him and cried. Aunt Deel happened to be near. She came and saw Amos pulling at the rope and me trying to save the dog.

"Come right down off'n that mow—this minute," said she.

When we had come down and the dog had followed pulling the rope after him, Aunt Deel was pale with anger.

"Go right home—right home," said she to Amos.

"Mr. Baynes said that he would take me up with the horses," said Amos.

"Ye can use shank's horses—ayes!—they're good enough for you," Aunt Deel insisted, and so the boy went away in disgrace.

I blushed to think of the poor opinion he would have of the place now. It seemed to me a pity that it should be made any worse, but I couldn't help it.

"Where are your pennies?" Aunt Deel said to me. I felt in my pockets but couldn't find them.

"Where did ye have 'em last?" my aunt demanded.

"On the haymow."

"Come an' show me."

We went to the mow and searched for the pennies, but not one of them could we find.

I remembered that when I saw them last Amos had them in his hand.

"I'm awful 'fraid for him—ayes I be!" said Aunt Deel. "I'm 'fraid Rovin' Kate was right about him—ayes!"

"What did she say?" I asked.

"That he was goin' to be hung—ayes! You can't play with him no more. Boys that take what don't belong to 'em—which I hope he didn't—ayes I hope it awful—are apt to be hung by their necks until they are dead—jest as he was goin' to hang ol' Shep—ayes!—they are!"

Again I saw the dark figure of Old Kate standing in the sunlight and her ragged garments and bony hands and heard the hiss of her flying pencil point. I clung to my aunt's dress for a moment and then I found old Shep and sat down beside him with my arm around his neck. I did not speak of the story because I had promised not to and felt sure that Amos would do something to me if I did.

Uncle Peabody seemed to feel very badly when he learned how Amos had turned out.

"Don't say a word about it," said he. "Mebbe you lost the pennies. Don't mind 'em."

Soon after that, one afternoon, Aunt Deel came down in the field where we were dragging. While she was talking with Uncle Peabody an idea occurred to me and the dog and I ran for the house. There was a pan of honey on the top shelf of the pantry and ever since I had seen it put there I had cherished secret designs.

I ran into the deserted house, and with the aid of a chair climbed to the first shelf and then to the next, and reached into the pan and drew out a comb of honey, and with no delay whatever it went to my mouth. Suddenly it seemed to me that I had been hit by lightning. It was the sting of a bee. I felt myself going and made a wild grab and caught the edge of the pan and down we came to the floor—the pan and I—with a great crash.

I discovered that I was in desperate pain and trouble and I got to my feet and ran. I didn't know where I was going. It seemed to me that any other place would be better than that. My feet took me toward the barn and I crawled under it and hid there. My lip began to feel better, by and by, but big and queer. It stuck out so that I could see it. I heard my uncle coming with the horses, I concluded that I would stay where I was, but the dog came and sniffed and barked at the hole through which I had crawled as if saying, "Here he is!" My position was untenable. I came out. Shep began trying to clean my clothes with his tongue. Uncle Peabody stood near with the horses. He looked at me. He stuck his finger into the honey on my coat and smelt it.

"Well, by—" he stopped and came closer and asked:

"What's happened?"

"Bee stung me," I answered.

"Where did ye find so much honey that ye could go swimmin' in it?" he asked.

I heard the door of the house open suddenly and the voice of Aunt Deel.

"Peabody! Peabody! come here quick," she called.

Uncle Peabody ran to the house, but I stayed out with the dog.

Through the open door I heard Aunt Deel saying: "I can't stan' it any longer and I won't—not another day—ayes, I can't stan' it. That boy is a reg'lar pest."

They came out on the veranda. Uncle Peabody said nothing, but I could see that he couldn't stand it either. My brain was working fast.

"Come here, sir," Uncle Peabody called.

I knew it was serious, for he had never called me "sir" before. I went slowly to the steps.

"My lord!" Aunt Deel exclaimed. "Look at that lip and the honey all over him—ayes! I tell ye—I can't stan' it."

"Say, boy, is there anything on this place that you ain't tipped over?" Uncle Peabody asked in a sorrowful tone. "Wouldn't ye like to tip the house over?"

I was near breaking down in this answer:

"I went into the but'ry and that pan jumped on to me."

"Didn't you taste the honey?"

"No," I drew in my breath and shook my head.

"Liar, too!" said Aunt Deel. "I can't stan' it an' I won't."

Uncle Peabody was sorely tried, but he was keeping down his anger. His voice trembled as he said:

"Boy, I guess you'll have to—"

Uncle Peabody stopped. He had been driven to the last ditch, but he had not stepped over it. However, I knew what he had started to say and sat down on the steps in great dejection. Shep followed, working at my coat with his tongue.

I think that the sight of me must have touched the heart of Aunt Deel.

"Peabody Baynes, we mustn't be cruel," said she in a softer tone, and then she brought a rag and began to assist Shep in the process of cleaning my coat. "Good land! He's got to stay here—ayes!—he ain't go no other place to go to."

"But if you can't stan' it," said Uncle Peabody.

"I've got to stan' it—ayes! I can't stan' it, but I've got to—ayes! So have you."

Aunt Deel put me to bed although it was only five o'clock. As I lay looking up at the shingles a singular resolution came to me. It was born of my longing for the companionship of my kind and of my resentment. I would go and live with the Dunkelbergs. I would go the way they had gone and find them. I knew it was ten miles away, but of course everybody knew where the Dunkelbergs lived and any one would show me. I would run and get there before dark and tell them that I wanted to live with them, and every day I would play with Sally Dunkelberg. Uncle Peabody was not half as nice to play with as she was.

I heard Uncle Peabody drive away. I watched him through the open window. I could hear Aunt Deel washing the dishes in the kitchen. I got out of bed very slyly and put on my Sunday clothes. I went to the open window. The sun had just gone over the top of the woods. I would have to hurry to get to the Dunkelbergs' before dark. I crept out on the top of the shed and descended the ladder that leaned against it. I stood a moment listening. The dooryard was covered with shadows and very still. The dog must have gone with Uncle Peabody. I ran through the garden to the road and down it as fast as my bare feet would carry me. In that direction the nearest house was almost a mile away. I remember I was out of breath, and the light growing dim before I got to it. I went on. It seemed to me that I had gone nearly far enough to reach my destination when I heard a buggy coming behind me.

"Hello!" a voice called.

I turned and looked up at Dug Draper, in a single buggy, dressed in his Sunday suit.

"Is it much further to where the Dunkelbergs live?" I asked.

"The Dunkelbergs? Who be they?"

It seemed to me very strange that he didn't know the Dunkelbergs.

"Where Sally Dunkelberg lives."

That was a clincher. He laughed and swore and said:

"Git in here, boy. I'll take ye there."

I got into the buggy, and he struck his horse with the whip and went galloping away in the dusk.

"I reckon you're tryin' to git away from that old pup of an aunt," said he. "I don't wonder. I rather live with a she bear."

I have omitted and shall omit the oaths and curses with which his talk was flavored.

"I'm gittin' out o' this country myself," said he. "It's too pious for me."

By and by we passed Rovin' Kate. I could just discern her ragged form by the roadside and called to her. He struck his horse and gave me a rude shake and bade me shut up.

It was dark and I felt very cold and began to wish myself home in bed

"Ain't we most to the Dunkelbergs'?" I asked.

"No—not yet," he answered.

I burst into tears and he hit me a sounding whack in my face with his hand.

"No more whimperin'," he shouted. "Do ye hear me?"

He hurt me cruelly and I was terribly frightened and covered my face and smothered my cries and was just a little quaking lump of misery.

He shook me roughly and shoved me down on the buggy floor and said:

"You lay there and keep still; do ye hear?"

"Yes," I sobbed.

I lay shaking with fear and fighting my sorrow and keeping as still as I could with it, until, wearied by the strain, I fell asleep.

What an angel of mercy is sleep. Down falls her curtain and away she leads us—delivered! free!—into some magic country where are the things we have lost—perhaps even joy and youth and strength and old friendships.

What befell me that night while I dreamed of playing with the sweet-faced girl I have wondered often. Some time in the night Dug Draper had reached the village of Canton, and got rid of me. He had probably put me out at the water trough. Kind hands had picked me up and carried me to a little veranda that fronted the door of a law office. There I slept peacefully until daylight, when I felt a hand on my face and awoke suddenly. I remember that I felt cold, a kindly faced man stood leaning over me.

"Hello, boy!" said he. "Where did you come from?"

I was frightened and confused, but the gentle voice reassured me.

"Uncle Peabody!" I called, as I arose and looked about me and began to cry.

The man lifted me in his arms and held me close to his breast and tried to comfort me. I remember seeing the Silent Woman pass while I was in his arms.

"Tell me what's your name," he urged.

"Barton Baynes," I said as soon as I could speak.

"Where is your father?"

"In Heaven," I answered, that being

(Continued on page 419)

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The Practical Farmer
Live Stock *and* Dairy Section

Growing Horses to Suit the Demand

E. A. WENDT

Recently, two buyers motored over this section. They wanted horses and mules so badly that even a rumor was sufficient to send them miles out of their way on the chance of finding what they wanted. They got one horse here, and I told them of several farmers having horses and mules for sale. They went to look at them but none came up to specifications; they could not use them at any price, yet they wanted a large number. Breed, size and condition were the difficulties. The only horses they purchased were of heavy draft breeds and round, rolling fat—not just plump. They asked for much the same thing in mules—heavy draft types in good flesh and young. Either horses or mules must be well "broken."

No, brothers, they were not buying for military purposes. They were—say, it's going to hurt some, but it's better to have it out before it gets worse—they were buying to supply the needs of neighboring state farmers. Painful, isn't it? Farmers in need of draft animals for their work! Even if so situated that they can not produce their own animals they should be able to buy from neighboring farmers who are producing more than they can use—or sell. But they were forced to go to dealers. Why? Because their neighbor breeders, like many of our own, will not breed straight draft animals. They insist that if a horse is not speedy it is, necessarily, a draft animal. Quite right, too, in the same sense that if a man isn't a banker he is a farmer; quite as reasonable as that one cow is as good as another if both produce milk, though one may average 15 pounds of 4 per cent. milk and the other 40 pounds of 5 to 6 per cent. milk. In either case and with either cows or horses and mules, breeding is the foundation, while feed, care and common sense determine the style and value that will develop in the finished product.

In my experience, the first thing for the prospective farmer-breeder to do is to obtain a young, absolutely sound, biddable, well broken mare of the desired breed type, preferably of the round, compact build, easily kept in good flesh and salable condition, of some solid dark color and having good style and action. The legs and feet should receive special attention, because if they are not perfect other good qualities are of small value. Of course the sire must be as carefully judged in all respects, again specializing on legs and feet and avoiding clumsy action.

The breeder must constantly remind himself that faults, vices, any unsoundness, bad conformation, poor style or action, and weaknesses, are much more likely to be reproduced than good points, and that even if they do not show up at first, the predisposition to them will be there.

On most farms where corn is raised too much corn and timothy hay are fed to mares in foal for best results. I know that the addition of clover hay, bran, oats, oil meal to her ration will a lot more than pay for any extra expense. The same applies to the colts; they will not make the kind of growth that means fancy prices on a corn and hay ration. Therefore, why not feed what will yield the highest rate of interest on the investment? In fact, at this time the situation stands: Why not feed what will produce a horse that will sell for a little more than he actually cost us, rather than follow the old methods of breeding and feeding and produce something that is unsalable or that will not sell for as much as we have invested in him in the way of feed and incidentals, not counting the risk?

I have learned that the future demand will be for draft types—as other types are not popular, even if they have the weight—that the salable horse weighs from 1100 up; and that, to bring good prices, draft types must be in good flesh.

All of this applies to the popular mule. Also, it is best to breed from gentle, tractable mares that are quick and prompt and of the round, compact type. Another thing I have learned: Less feed would be wasted if the condition of each animal's mouth was known.

Maryland.

Hay feeding rack for hogs successfully used at Penna. State College

More Sheep—More Wool

The More Sheep—More Wool Association of the United States has now been completely organized. It will take over and continue the work for the encouragement of sheep husbandry which was inaugurated by the Philadelphia Wool and Textile Association and which has been conducted by them for the past two years. It is the purpose of the new association to encourage in all legitimate ways the development of sheep husbandry and obtain co-operation for this purpose to the widest extent possible. The membership is composed of large business organizations, will have ample financial support from them and will be in a position to broaden the effort for the restoration of the sheep industry.

Mr. A. C. Bigelow, who has previously directed the sheep campaign has been elected president of the More Sheep—More Wool Association of the United States and will direct its activities. All communications on this subject should now be addressed to him at 53 South Front Street, Philadelphia, Pa.

The Brood Sow and Her Litter

R. B. RUSHING

I raise two litters a year from about half of my sows. I breed them for early March pigs and then for fall farrowing. For the young sows and those that farrow very late I only raise one litter and breed them for the spring farrowing. By not breeding the young sows until yearlings, they have a chance to grow large. The fall gilts are bred the next fall for spring litters. I have made it a rule to select the best gilts, and never allow the male hog to run with them at breeding time.

I turn the sow in and out after one service. In the fall I run my sows in the corn stalk pastures, where rye has been sown, as long as I can on account of the weather. In winter I have a large, roomy place for them to sleep and let them have the run of some field or woods, and thus they take plenty of exercise. I feed them some corn, also some clover hay. Two or three weeks before farrowing time I feed some oats or rye and turnips. And a few days before farrowing time I shut each sow in an individual house set in a lot about two or three rods square, and feed some slop or middlings and some ground oats or rye.

At farrowing time I find it necessary to watch the sows, especially in case of first litters. If a sow is restless I place the pigs in a basket and take them to the house or barn until she is quiet. Should one sow have more pigs than she can care for, and another not enough, I mark the pigs and divide them; when the pigs are the same age the sows will not object to this.

If the sow at farrowing time is restless and wants feed I give her a light feed of slop. The second day I give her about a half feed of slop and an ear of corn and gradually increase until the pigs are a week old, when I put her on full feed. I aim to keep my sows in good flesh while the pigs are with them, and not let them suckle down. As soon as I can I get the little fellows to drink sweet milk by having a small enclosure close to their pens, and some warm milk in a shallow trough. After they have learned to drink milk well I add some middlings.

I have used many kinds of houses, and find that there is very little difference in the kind of houses; however, the A-shaped is very good for a farrowing pen. In building any kind of a hog house be sure that it is high enough so that you can walk in it straight. It is best to have the house face the southeast, so that the little pigs will get the sun most of the day. They should be supplied with plenty of bedding of some kind. Shredded fodder makes a very good bedding for the farrowing sows.

I clean the pens every few days while pigs are young, by sweeping out the dust. In very cold weather I hang up a lantern in the house high enough so that the sow cannot reach it, shut up the house and save the pigs in very cold weather, as the lantern helps to minimize the cold in the house, so that it will not injure the pigs.

For my hog pasture, and especially for my sows and pigs, I have rye in early fall and spring, then rape and clover following. My sows are allowed to run on this after the pigs are weaned, and then fed very little besides pasture, until time to shut them up again for farrowing. In this way they are kept healthy and their pigs are much stronger than when they are confined to some pen where they have to be fed heavily to maintain their flesh.

I do not try to get my brood sows fat, but rather in good developing condition, sufficient to care for the developing pigs.

I never did have any luck with sows that got real fat while carrying their young, but, on the other hand, by keeping them only in fair shape and making them work for that, they are always strong and healthy and then when the pigs come they are in shape to stand the extra strain, and when they are put on full feed they make the little fellows hump.—*Illinois.*

Dairy Cow Must Have Protein

Next to not feeding liberally enough the most common mistake made in feeding dairy cows is not giving enough protein. Nothing can take the place of protein in the ration. If it is short in amount, feeding an over abundance of the fattening foods only results in waste, says C. H. Eckles, of the Missouri College of Agriculture. Corn silage, timothy hay and corn are all especially low in protein, and since these are the most common feeds the dairy cow often fails to do her best on account of a lack of protein.

Corn silage and corn are the foundation of the cheapest and best ration. If alfalfa, clover, soy bean, or cowpea hay are fed in addition, considerable protein will be supplied and the amount of protein feeds to be purchased will be small. Under these conditions a good grain mixture would be, corn 4 parts, bran 1 part. In addition heavy milking cows should have one pound of cotton seed, gluten or linseed meal daily. If timothy hay, sorghum or corn fodder are fed with the silage larger quantities of rich protein feeds should be fed. To supplement these roughages a mixture of corn 3 parts, bran 1 part and cotton seed meal

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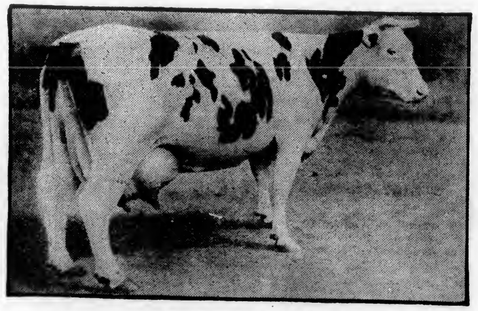
1 part, will be suitable with an additional pound daily of the meal used to each heavy producing cow.

When corn silage is fed, as a rule, the grain mixture should be fed at the rate of about one pound to each 3 pounds of milk produced by a Jersey and 4 pounds of milk produced by a Holstein. When no silage is fed the grain ration should be increased somewhat in proportion to the milk, since the animal will not consume so much of the roughage. If corn fodder and timothy hay are the only roughage available the same grain mixture is recommended as when these roughages are fed with silage.

News from the Breed Associations

That many dairy cows have been recently slaughtered, owing to the scarcity of farm labor, the high cost of cattle feed, the high price paid for beef animals, and the comparatively inadequate price paid for dairy products, is well known. How far these conditions have affected the pure-bred dairy cattle has quite frequently been asked. It can be answered, as far as the Jersey breed is concerned, by a report recently made to the directors of the American Jersey Cattle Club. The fiscal year of this club begins April 1, and since that date there has been an increase in Jersey registrations of 44 per cent., an increase in transfers of ownership of 9 per cent., an increase in year's authenticated milk and butter-fat tests of 5½ per cent., and increase in gross income of 44 per cent. Notwithstanding the many adverse conditions affecting generally the dairy interests, and the great amount of work in support of these interests recently carried on by this organization, the financial condition of the American Jersey Cattle Club was never so satisfactory as it is now. The club has invested $15,800 in bonds of the City and State of New York, has taken $15,000 Liberty Bonds, holds real estate to the value of $140,000, and has a bank balance (Oct. 21) of $23,000, making its total resources $193,800.



Pontiac Clothilde DeKol 2nd
Type of Holsteins making big yearly records of milk and butterfat

Eastern breeders who are considering the possibilities of beef production will find much to interest them in the fourth edition of "Supremacy of Aberdeen-Angus Cattle," which has just been published by the American Aberdeen-Angus Breeders' Association. A copy may be had free by addressing the secretary at 817 Exchange Avenue, Chicago, Ill.

At the recent meeting of the board of directors of the American Shorthorn Breeders' Association approximately $8000 was appropriated for the National Shorthorn Congress, Show and Sale to be held in Chicago the third week in February. It was also decided that a gold medal would be given to the student in the college judging teams who scored the highest number of points in judging Shorthorn cattle in the forthcoming International Live Stock Exposition. In an effort to farther serve the interests of the Milking Shorthorn breeders it was arranged for the Association's representative, L. J. McMartin, to spend several weeks in New England and Eastern territory among the breeders and make a study of the needs and prospects of the Milking Shorthorn interests there.

The American Duroc-Jersey Swine Breeders' Association writes us: "Our year has just ended, and we find we have made something like a 25 per cent. increase over the receipts of last year. The interest throughout the South has been the marked feature of the year and the high quality of the judging done at the various state fairs and exhibitions was another very commendable advancement.

At our annual meeting we expect to double our capital stock and make room for the new men who are continually asking for membership in our association. The interest in hog production on account of the war and the shortage of food products has stimulated our work very much and hogs are being raised in large numbers in territories not considered the hog belt heretofore."

The United States Government has again selected pure-bred Holsteins for its own use. Harlo J. Fisk has recently concluded the purchase of 100 as choice specimens of the Black-and-White breed as have ever been gathered together. The stock was all Wisconsin bred and ranged in price from $275 to $1000. This is not the first time the Government has selected pure-bred Holsteins for their own use. One of the finest herds of the Black-and-Whites in the country is owned by the U. S. Soldiers' Home at Washington, D. C., and it is one of the principal points of interest on the grounds of this big institution in the Capital City.

During the International Live Stock Show at Chicago, December 1 to 8, the following breeders' meetings will be held:

Red Polled Cattle Club of America, Live Stock Record Bldg., Dec. 5, 2 P. M.

American Duroc-Jersey Swine Breeders, Sherman Hotel, Dec. 4.

American Shorthorn Breeders' Association, Congress Hotel, Dec. 5, 7 P. M.

Meeting of New York Dairymen

The 41st annual convention of the New York State Dairymen's Association will be held at the Armory in Syracuse on December 11 to 14, 1917.

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DUROC HERD BOAR Defender W. 161187. Price $60. A lengthy, big heavy boned fellow. Keeping gilts of our him reason for selling. RALPH WILSON, Bloomville, Ohio.

The Relation of the Dairy Cow to Profitable Farming

(Concluded from page 401)

the platforms should be about 4½ feet long, but we have arranged the platforms so that they are longer at one end and place the cows in the stable according to their length of body. The ceiling is 7½ feet high, but it should be a full 8 feet. The barn stands north and south and is fairly well lighted. We have concrete floors and find them the best for the cows and every one connected with the work in the stables. We have never had a cow injured by standing on a concrete floor.

From a sanitary point of view I like the shallow mangers, but in actual practice I want my mangers high enough so that the cows cannot waste their feeds. Then again, many cows are injured slipping and sliding on the platform while reaching for feed that has fallen over the manger. Our mangers are subdivided with light iron partitions which can be raised to allow them to be flushed out with a hose about twice a week. We use the ordinary swing stanchions and find that, as regards cost, convenience, durability and simplicity it is the best and most sanitary form of tie-up. Some of the up-to-date stalls and forms of tie-ups undoubtedly are valuable, and should be investigated.

I have found the silo a great factor in cutting down the feed bills and furnishing exactly what is needed to keep the cow's system in good working order. Tender pasture grass makes a ration perfectly suited to the cow's needs and hard to imitate, but the silo is needed to span the dreaded gap between the spring and fall grazing season. Therefore, while building a large silo for winter feeding it is well to build a smaller one for summer feeding. We have two round stave silos and find them very economical and efficient, although if one has plenty of money and wishes to build more permanent, the concrete or hollow tile silos are, perhaps, better. For a dairy of 30 cows I find that one silo 30 feet high and 16 feet in diameter and another of the same height and 14 feet in diameter about the right sizes.

One of the most important factors in profitable dairying is that of regulating the number of cows kept on the farm to the amount of labor that is available. Two men can handle a 24 to 28-cow dairy and do the larger part of the farm work, but it makes a bad mess of the whole thing to have more cows than can be profitably handled with the available help. This also applies with equal force to the number of horses kept on the farm. It costs considerable to keep horses and one must plan to keep every horse busy at profitable work every day when the weather is favorable for outside work. It is by cutting down the operating expenses and making the best use of land, labor and fertility that many dairymen are making a profit every year while others are complaining that dairying don't pay.

New York.

The Light in the Clearing

(Continued from page 416)

the place to which he had moved, as I understood it.

"Where do you live?"

"In Lickitysplit."

"How did you get here?"

"Dug Draper brought me. Do you know where Sally Dunkelberg lives?"

"Is she the daughter of Horace Dunkelberg?"

"Mr. and Mrs. Horace Dunkelberg," I amended.

"Oh yes, I know her. Sally is a friend of mine. We'll get some breakfast and then we'll go and find her."

He carried me through the open door of his office and set me down at his desk. The cold air of the night had chilled me and I was shivering.

"You sit there and I'll have a fire going in a minute and get you warmed up."

He wrapped me in his coat and went into the back room and built a fire in a small stove and brought me in and set me down beside it. He made some porridge in a kettle while I sat holding my little hands over the stove to warm them, and a sense of comfort grew in me. Soon a boy came bringing a small pail of fresh milk and a loaf of bread. I remember how curiously the boy eyed me as he said to my new friend:

"Captain Moody wants to know if you'll come up to dinner?"

There was a note of dignity in the reply which was new to me, and for that reason probably I have always remembered it.

"Please present my thanks to the Captain and tell him that I expect to go up to Lickitysplit in the town of Ballybeen."

He dipped some porridge into bowls and put them on a small table. My eyes had watched him with growing interest and I got to the table about as soon as the porridge and mounted a chair and seized a spoon.

"One moment, Bart," said my host. "By jingo! We've forgotten to wash, and your face looks like the dry bed of a river. Come here a minute."

He led me out of the back door, where there were a wash-stand and a pail and a tin basin and a dish of soft soap. He dipped the pail in a rain barrel and filled the basin, and I washed myself and waited not upon my host, but made for the table and began to eat, being very hungry, after hastily drying my face on a towel. In a minute he came and sat down to his own porridge and bread and butter.

"Bart, don't dig so fast," said he. "you're down to hard pan now. Never be in a hurry to see the bottom of the bowl."

I have never forgotten the look of amusement in his big, smiling, gray eyes as they looked down upon me out of his full, ruddy, smooth-shaven face. It inspired confidence and I whispered timidly:

"Could I have some more?"

"All you want," he answered, as he put another ladle full in my bowl.

When we had finished eating he set aside the dishes and I asked:

"Now could I go and see Sally Dunkelberg?"

"What in the world do you want of Sally Dunkelberg?" he asked.

"Oh, just to play with her," I said as I showed him how I could sit on my hands and raise myself from the chair bottom.

"Haven't you any one to play with at home?"

"Only my Uncle Peabody."

"Don't you like to play with him?"

"Oh, some, but he can't stand me any longer. He's all tired out, and my Aunt Deel, too. I've tipped over every single

MILK ..... and WAR TIME

In these days of high prices for dairy products, the "poor milker" is more than ever a liability.

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Protein, 16½%; Fat, 3½%; Fiber, 15%.
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TIGHT BINDING TEXT CUT OFF

thing on that place. I tipped over the honey yesterday—split it all over everything and rooend my clothes. I'm a reg'lar pest. So I want to play with Sally Dunkelberg. She knows all kinds o' riddles and games and all about grand ladies and gentlemen and she wears shiny shoes and her hair smells just like roses, and I want to play with her a little while—just a wee little while."

I had unburdened my soul. The above words are quoted not from my memory, but from his, which has always been most reliable. I remember well my thoughts and feelings but not many of my words on a day so distant.

"Forward, march!" said he and away we started for the home of the Dunkelbergs. The village interested me immensely. I had seen it only twice before. People were moving about in the streets. One thing I did not fail to notice. Every man we met touched his hat as he greeted my friend.

"Good morning, Sile," some said, as we passed them, or, "How are you, Comptroller?"

It was a square frame house—that of the Dunkelbergs—large for that village, and had a big dooryard with trees in it. As we came near the gate I saw Sally Dunkelberg playing with other children among the trees. Suddenly I was afraid and began to hang back. I looked down at my bare feet and my clothes, both of which were dirty. Sally and her friends had stopped their play and were standing in a group looking at us. I heard Sally whisper:

"It's that Baynes boy. Don't he look dirty?"

I stopped and withdrew my hand from that of my guide.

"Come on, Bart," he said.

I shook my head and stood looking over at that little, hostile tribe near me.

"Go and play with them while I step into the house," he urged.

Again I shook my head.

"Well, then, you wait here a moment," said my new-found friend.

He left me and I sat down upon the ground, thoughtful and silent.

He went to the children and kissed Sally and whispered in her ear and passed on into the house. The children walked over to me.

"Hello, Bart!" said Sally.

"Hello!" I answered.

"Wouldn't you like to play with us?"

I shook my head.

Some of them began to whisper and laugh. I remember how beautiful the girls looked with their flowing hair and ribbons and pretty dresses. What happy faces they had! I wonder why it all frightened and distressed me so.

In a moment my friend came out with Mrs. Dunkelberg, who kissed me, and asked me to tell how I happened to be there.

"I just thought I would come," I said as I twisted a button on my coat, and would say no more to her.

"Mr. Wright, you're going to take him home, are you?" Mrs. Dunkelberg asked.

"Yes. I'll start off with him in an hour or so," said my friend. "I am interested in this boy and I want to see his aunt and uncle.

"Let him stay here with us until you're ready to go."

"I don't want to stay here," I said, seizing my friend's hand.

"Well, Sally, you go down to the office and stay with Bart until they go."

"You'd like that wouldn't you?" the man asked of me.

"I don't know," I said

"That means yes," said the man.

Sally and another little girl came with us and passing a store I held back to look at many beautiful things in a big window.

"Is there anything you'd like there, Bart?" the man asked.

"I wisht I had a pair o' them shiny shoes with buttons on," I answered in a low, confidential tone, afraid to express, openly, a wish so extravagant

"Come right in," he said, and I remember that when we entered the store I could hear my heart beating.

He bought a pair of shoes for me and I would have them on at once, and that made it necessary for him to buy a pair of socks also. After the shoes were buttoned on my feet I saw little of Sally Dunkelberg or the other people of the village, my eyes being on my feet most of the time.

The man took us into his office and told us to sit down until he could write a letter.

I remember how, as he wrote, I stood by his chair and examined the glazed brown buttons on his coat and bit one of them to see how hard it was, while Sally was feeling his gray hair and necktie. He scratched along with his quill pen as if wholly unaware of our presence.

Soon a horse and buggy came for us and I briefly answered Sally's good-by before the man drove away with me. I remember telling him as we went on over the rough road, between fields of ripened grain, of my watermelon and my dog and my little pet hen.

I shall not try to describe that home coming. We found Aunt Deel in the road five miles from home. She had been calling and traveling from house to house most of the night, and I have never forgotten her joy at seeing me and her tender greeting. She got into the buggy and rode home with us, holding me in her lap. Uncle Peabody and one of our neighbors had been out in the woods all night with pine torches. I recall how, although excited by my return, he took off his hat at the sight of my new friend and said:

"Mr. Wright, I never wished that I lived in a palace until now."

He didn't notice me until I held up both feet and called: "Look a' there Uncle Peabody."

Then he came and took me out of the buggy and I saw tears in his eyes when he kissed me.

The man told of finding me on his little veranda, and I told of my ride with Dug Draper, after which Uncle Peabody said:

"I'm goin' to put in your hoss and feed him, Comptroller."

"And I'm goin' to cook the best dinner I ever cooked in my life," said Aunt Deel.

I knew that my new friend must be even greater than the Dunkelbergs, for there was a special extravagance in their tone and manner toward him which I did not fail to note. His courtesy and the distinction of his address, as he sat at our table, were not lost upon me, either. During the meal I heard that Dug Draper had run off with a neighbor's horse and buggy and had not yet returned. Aunt Deel said that he had taken me with him out of spite, and that he would probably never come back—a suspicion justified by the facts of history.

When the great man had gone Uncle Peabody took me in his lap and said very gently and with a serious look:

"You didn't think I meant it, did ye?—that you would have to go 'way from here?"

"I don't know," was my answer.

"Course I didn't mean that. I just wanted ye to see that it wa'n't goin' to do for you to keep on tippin' things over so."

I sat telling them of my adventures and answering questions, flattered by their tender interest, until milking time. I thoroughly enjoyed all that. When I rose to go out with Uncle Peabody, Aunt Deel demanded my shoes.

"Take 'em right off," said she. "I ain't a goin' to do to wear 'em common—no, sir-ee! They're for meetin' or when company comes—ayes!"

I regretfully took off the shoes and gave them to her, and thereafter the shoes were guarded as carefully as the butternut trousers.

That evening as I was about to go upstairs to bed, Aunt Deel said to my uncle:

"Do you remember what ol' Kate wrote down about him? This is his first peril an' he has met his first great man an' I can see that Sile Wright is kind of fond o' him."

I went to sleep that night thinking of the strange, old, ragged, silent woman.

(Continued next issue.)

More Horses Per Man

In view of the probable shortage of farm labor next spring, now is a timely occasion to rig up several three and four-horse eveners to be used on the farm implements. One man with a four-horse team will do almost as much work in preparing the spring seedbed as two men, each using a 2-horse team.

The principal dairy states will waste, this winter, 3½ Billion Pounds of Milk

Simply by failing to get it; failing, too, when it would be easy to produce that increase for a world market that demands every possible ounce of food.

Surely this is not the time to overlook any opportunity for increased dairy production and profit. It is no time for waste or neglect. The bending of every effort toward bigger dairy results, for both patriotic and personal reasons, is the duty of every dairy farmer. Here is one way in which the dairy farmers of the principal dairy states could add this winter 3,600,000,000 more pounds of milk. At $3 per cwt. this would mean $108,000,000 more profit.

These are not wild figures. They represent bed-rock facts, and they mean that if all the cows in the principal dairy states were properly watered with James Drinking Cups they would add 3½ billion *more* pounds of milk to this winter's yield—milk that would be worth to the nation as a whole, and to you in part as a producer, at only $3 per hundred, more than a hundred million dollars.

A tidy sum for the dairymen of this country to think about, isn't it? A sum well worth saving in *any* year, but especially so in this period of advancing food prices, increased milk demand and costly feed.

Then there's your own question of labor, and the protection of your herd from disease, to be thought about in this great crisis. James Drinking Cups give each cow clean, safe water that no other cow has had her nose in. They do away with the hard, cold job of herding the cows out to the tank, herding them in again—chopping open the frozen tank.

There are two shortages for you to think about: The world-wide food shortage, and your own pocketbook shortage caused by your cows not getting all the water they want, *when they want it*, at the right temperature, day or night.

They will give more. All they need is the opportunity. James Drinking Cups spell that opportunity. The milk increase of the average cow will *pay for her cup* in 90 days. At the end of that time the account covering the complete installation will be *squared* as a result of increased profit, leaving you the cups for many years of money-making service, either in your present barn or when re-installed in a new one.

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MERRY CHRISTMAS

TIGHT BINDING TEXT CUT OFF

The Light in the Clearing

A Tale of the North Country in the Time of Silas Wright

By IRVING BACHELLER

Author of Eben Holden, D'ri and I. Darrel of the Blessed Isles, Keeping Up With Lizzie, etc.

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CHAPTER III.

WE GO TO MEETING AND SEE MR. WRIGHT AGAIN.

I had a chill that night and in the weeks that followed I was nearly burned up with lung fever. Doctor Clark came from Canton to see me every other day for a time, and one evening Mr. Wright came with him and watched all night near my bedside. He gave me medicine every hour, and I remember how gently he would speak and raise my head when he came with the spoon and the draft. It grieved me to hear him say, as he raised me in his arms, that I wasn't bigger than "a cock mosquito."

I would lie and watch him as he put a stick on the fire and tiptoed to his armchair by the table, on which three lighted candles were burning. Then he would adjust his spectacles, pick up his book, and begin to read, and I would see him smile or frown or laugh until I wondered what was between the black covers of the book to move him so. In the morning he said that he could come the next Tuesday night, if we needed him, and set out right after breakfast, in the dim dawn light, to walk to Canton.

"Peabody Baynes," said my Aunt Deel as she stood looking out of the window at Mr. Wright, "that is one of the grandest, splendidest men that I ever see or heard of. He's an awful smart man, an' a day o' his time is worth more'n a month of our'n, but he comes away off here to set up with a sick young one and walks back. Does beat all—don't it?—ayes!"

"If any one needs help Sile Wright is always on hand," said Uncle Peabody.

I was soon out of bed and he came no more to sit up with me.

When I was well again Aunt Deel said one day: "Peabody Baynes, I ain't heard no preachin' since Mr. Pangborn died. I guess we better go down to Canton to meetin' some Sunday. If there ain't no minister Sile Wright always reads a sermon, if he's home, and the paper says he don't go away for a month yit. I kind o' feel the need of a good sermon—ayes!"

"All right. I'll hitch up the hosses and we'll go. We can start at eight o'clock and take a bite with us an' git back here by three."

"Could I wear my new shoes and trousers?" I asked joyfully.

"Ayes I guess ye can if you're a good boy—ayes!" said Aunt Deel.

I had told Aunt Deel what Sally had said of my personal appearance.

"Your coat is good enough for anybody—ayes!" said she. "I'll make you a pair o' breeches an' then I guess you won't have to be 'shamed no more."

She had spent several evenings making them out of an old gray flannel petticoat of hers and had put two pockets in them of which I was very proud. They came just to the tops of my shoes, which pleased me, for thereby the glory of my new shoes suffered no encroachment.

The next Sunday after they were finished we had preaching in the schoolhouse and I was eager to go and wear my wonderful trousers. Uncle Peabody said that he didn't know whether his leg would hold out or not "through a whole meetin'." His left leg was lame from a wrench and pained him if he sat long in one position. I greatly enjoyed this first public exhibition of my new trousers. I remember praying in silence, as we sat down, that Uncle Peabody's leg would hold out. Later, when the long sermon had begun to weary me, I prayed that it would not.

I decided that meetin's were not a successful form of entertainment. Indeed, Sunday was for me a lost day. It was filled with shaving and washing and reading and an overwhelming silence. Uncle Peabody always shaved after breakfast and then he would sit down to read the *St. Lawrence Republican*. Both occupations deprived him utterly of his usefulness as an uncle. I remember that I regarded the razor and the *Republican* as my worst enemies. The *Republican* earned my keenest dislike, for it always put my uncle to sleep and presently he would stretch out on the lounge and begin to puff and snore and then Aunt Deel always went around on her tiptoes and said sh-h-h! She spent the greater part of the forenoon in her room washing and changing her clothes and reading her Bible. How loudly the clock ticked that day! How defiantly the cock crew! It seemed as if he were making special efforts to start up the life of the farm. How shrill were the tree crickets! Often Shep and I would steal off into the back lot trying to scare up a squirrel and I would look longingly down the valley, and could dimly see the roofs of houses where there were other children. I would gladly have made friends with the Wills boy, but he would have nothing to do with me, and soon his people moved away. My uncle said that Mr. Grimshaw had foreclosed their mortgage.

The fields were so still that I wondered if the grass grew on Sunday. The laws of God and nature seemed to be in conflict, for our livers got out of order and some one of us always had a headache in the afternoon. It was apt to be Uncle Peabody, as I had reason to know, for I always begged him to go in swimmin' with me in the afternoon.

It was a beautiful summer morning as we drove down the hills and from the summit of the last high ridge we could see the smoke of a steamer looming over the St. Lawrence and the big buildings of Canton on the distant flats below us. My heart beat fast when I reflected that I should soon see Mr. Wright and the Dunkelbergs. I had lost a little of my interest in Sally. Still I felt sure that when she saw my new breeches she would conclude that I was a person not to be trifled with. When we got to Canton people were flocking to the big stone Presbyterian Church. We drove our horses under the shed of the tavern and Uncle Peabody brought them water from the pump and fed them, out of our own bag under the buggy seat, before we went to the church.

It was what they called a "deacon meeting." I remember that Mr. Wright read from the Scriptures, and having explained that there was no minister in the village, read one of Mr. Edwards' sermons, in the course of which I went to sleep on the arm of my aunt. She awoke me when the service had ended, and whispered:

"Come, we're goin' down to speak to Mr. Wright."

We saw Mr. and Mrs. Horace Dunkelberg in the aisle, who said that they would wait for us outside, the church.

I remember that Mr. Wright kissed me and said:

"Hello! Here's my boy in a new pair o' trousers!"

"Put yer hand in there," I said proudly, as I took my own out of one of the pockets and pointed the way.

He did not accept the invitation, but laughed heartily and gave me a little hug.

When we went out of the church there stood Mr. and Mrs Horace Dunkelberg, and Sally and some other children. It was a tragic moment for me when Sally laughed and ran behind her mother. Still worse was it when a couple of boys ran away crying, "Look at the breeches!"

I looked down at my breeches and wondered what was wrong with them. They seemed very splendid to me and yet I saw at once that they were not popular. I went close to my Aunt Deel and partly hid myself in her cloak. I heard Mrs. Dunkelberg say:

"Of course you'll come to dinner with us?"

For a second my hopes leaped high. I was hungry and visions of jelly cake and preserves rose before me. Of course, there were the trousers, but perhaps Sally would get used to the trousers and ask me to play with her.

"Thank ye, but we've got a good ways to go and we fetched a bite with us—ayes!" said Aunt Deel.

Eagerly I awaited an invitation from the great Mrs. Dunkelberg that should be decisively urgent, but she only said:

"I'm very sorry you can't stay."

My hopes fell like bricks and vanished like bubbles.

The Dunkelbergs left us with pleasant words. They had asked me to shake hands with Sally, but I had clung to my aunt's cloak and firmly refused to make any advances. Slowly and without a word we walked across the park toward the tavern sheds. Hot tears were flowing down my cheeks—silent tears! for I did not wish to explain them. Furtively I brushed them away with my hand. The odor of frying beef steak came out of the open doors of the tavern. It was more than I could stand. I hadn't tasted fresh meat since Uncle Peabody had killed a deer in midsummer. He gave me a look of understanding, but said nothing for a minute. Then he proposed:

"Mebbe we better git dinner here?"

Aunt Deel hesitated at the edge of the stable yard, surrounded as she was by the aroma of the fleshpots, then:

"I guess we better go right home and save our money, Peabody—ayes!" said she. "We told Mr. and Mrs. Horace Dunkelberg that we was goin' home and they'd think we was liars."

"We orto have gone with 'em," said Uncle Peabody as he unhitched the horses.

"Well, Peabody Baynes, they didn't appear to be very anxious to have us," Aunt Deel answered with a sigh.

We had started away up the South road when, to my surprise, Aunt Deel mildly attacked the Dunkelbergs.

"These here village folks like to be waited on—ayes!—an' they're awful anxious you should come to see 'em when ye can't—ayes!—but when ye get to the village they ain't nigh so anxious—no they ain't."

Uncle Peabody made no answer, but sat looking forward thoughtfully and tapping the dashboard with his whipstock, and we rode on in a silence broken only by the creak of the evener and the sound of the horses' hoofs in the sand.

In the middle of the great cedar swamp near Little River Aunt Deel got out the lunch basket and I sat down on the buggy bottom between their legs and leaning against the dash. So disposed we ate our luncheon of fried cakes and bread and butter and maple sugar and cheese. The road was a straight alley through the evergreen forest, and its grateful shadow covered us. When we had come out into the hot sunlight by the Hale farm both my aunt and uncle complained of headache. What an efficient cure for good health were the doughnuts and cheese and sugar, especially if they were mixed with the idleness of a Sunday. I had a headache also and soon fell asleep.

The sun was low when they awoke me in our dooryard.

"Hope it'll be some time 'fore ye feel the need of another sermon," said Uncle Peabody as Aunt Deel got out of the buggy. "I ain't felt so wicked in years."

I was so sick Aunt Deel put me to bed and said that she would feed the pigs and chickens. Sick as he was, Uncle Peabody had to milk the cows. How relentless were the cows!

I soon discovered that the Dunkelbergs had fallen from their high estate in our home and that Silas Wright, Jr., had taken their place in the conversation of Aunt Deel.

CHAPTER IV.

OUR LITTLE STRANGE COMPANION.

In the pathless forest we had a little companion that always knew its way. No matter how strange and remote the place might be or how black the night its tiny finger pointed in the same direction. By the light of the torch at midnight, in blinding darkness, I have seen it sway and settle toward its beloved goal. It seemed to be thinking of some far country which it desired to recommend to us.

It seemed to say: "Look! I know not which way is yours, but this—this is my way and all the little cross roads lead off it."

What a wonderful wisdom it had! I remember it excited a feeling of awe in me as if it were a spirit and not a tool.

The reader will have observed that my uncle spoke of the compass as if it directed plant and animal in achieving their purposes. From the beginning in the land of my birth it had been a thing as familiar as the dial and as necessary. The farms along our road were only stumpy recesses in the wilderness, with irregular curving outlines of thick timber—beech and birch and maple and balsam and spruce and pine and tamarack—forever whispering of the unconquered lands that rolled in great billowy ridges to the far horizon.

We were surrounded by the gloom and mystery of the forest. If one left the road or trail for even a short walk he needed a compass to guide him. That little brass box with its needle, swaying and seeming to quiver with excitement as it felt its way to the north side of the circle and pointed unerringly at last toward its favorite star, filled me with wonder.

"Why does it point toward the north star?" I used to ask.

"That's a secret," said Uncle Peabody. "I wouldn't wonder if the gate o' heaven was up there. Maybe it's a light in God's winder. Who knows? I kind o' mistrust it's the direction we're all goin' in."

"You talk like one o' them Unaversalists," said Aunt Deel. "They're gettin' thick as flies around here."

"Wal, I kind o' believe—" he paused at the edge of what may have been a dangerous opinion.

I shook the box and the needle swung and quivered back and forth and settled with its point in the north again. Oh, what a mystery! My eyes grew big at the thought of it.

"Do folks take compasses with 'em when they die?" I asked.

"No, they don't need 'em then," said Uncle Peabody. "Everybody has a kind of a compass in his own heart—same as watermelons and chickens have. It shows us the way to be useful, and I guess the way o' usefulness is the way to heaven every time."

"An' the way o' uselessness is the way to hell," Aunt Deel added.

One evening in the early summer the great Silas Wright had come to our house from the village of Russell, where he had been training a company of militia.

I remember that as he entered our door he spoke in this fashion: "Baynes, lc's go fishing. All the way down the road I've heard the call o' the brooks. I stopped on the Dingley Bridge and looked down at the water. The trout were jumping so I guess they must 'a' got sunburnt and freckled and sore. I can't stand too much o' that kind o' thing. It riles me. I heard, long ago, that you were a first-class fisherman, so I cut across lots and here I am."

His vivid words touched my imagination and I have often recalled them.

"Well, now by mighty! I—" Uncle Peabody drew the rein upon his imagination at the very brink of some great extravagance and after a moment's pause added: "We'll start out bright an' early in the mornin' an' go an' git Bill Seaver. He's got a camp on the Middle Branch, an' he can cook almost as good as my sister."

"Is your spring's work done?"

"All done, an' I was kind o' thinkin'," said Uncle Peabody with a little shake of his head. He didn't say of what he had been thinking, that being unnecessary.

"Bart, are you with us?" said Mr. Wright as he gave me a playful poke with his hand.

"May I go?" I asked my uncle.

"I wouldn't wonder—go ask yer aunt," said Uncle Peabody.

My soul was afire with eagerness. My feet shook the floor and I tipped over a chair in my hurry to get to the kitchen, whither my aunt had gone soon after the appearance of our guest. She was getting supper for Mr. Wright.

"Aunt Deel, I'm goin' fishin'," I said.

"Fishin'! I guess not—ayes I do," she answered.

It was more than I could stand. A roar of distress and disappointment came from my lips.

Uncle Peabody hurried into the kitchen.

"The Comptroller wants him to go," said he.

"He does?" she repeated as she stood with her hands on her hips looking up at her brother.

"He likes Bart and wants to take him along."

"Wal, then, you'll have to be awful careful of him," said Aunt Deel. "I'm 'fraid he'll plague ye—ayes!"

"No, he won't—we'll love to have him."

"Wal, I guess you could git Mary Billings to come over and stay with me an' help with the chores—ayes, I wouldn't wonder!"

I could contain my joy no longer, but ran into the other room on tiptoe and announced excitedly that I was going. Then I rushed out of the open door and rolled and tumbled on the growing grass, with the dog barking at my side. In such times of joyful excitement I always rolled and tumbled in the growing grass. It was my way of expressing inexpressible delight.

I felt sorry for the dog. Poor fellow! He couldn't go fishing. He had to stay home always. I felt sorry for the house

(Continued on page 440)

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How We Met the Farm Labor Situation

STEPHEN N. TRIMBLE

OURS is not a country gentleman's show place, nor one of the many which have sprung up around us the last few years as the result of "war brides"—it is just an ordinary 100-acre farm in southeastern Pennsylvania on the outskirts of a great munition and shipbuilding center. It has been in our family since 1840, and when grandfather moved here in that year it is said he brought all his farm equipment and tools in one Dearborn load. Of course, as long as I can remember we have had what we considered sufficient machinery to help with our work. For instance, the reaper and binder we used this year was cutting its twenty-first harvest for us, and it has averaged about ten acres each year. It was bought in 1897 and still looks good for several years work. The reason is, I presume, because it never was out in the rain or over night until this year, when a neighbor hired it. We have had a manure spreader for ten years and every time I drive it to top-dress the mowing fields I feel thankful that the horses are doing the hard work and not me, as somebody must have done in grandfather's day. During the last three years, or since the war began, however, we had to do something to help with our labor problem, as we had to compete with war-factory wages and time clocks, and sometimes do without outside help at all, father and I having to look after everything. More equipment seemed to offer the best solution, so we have added about $2500 worth of standard labor savers and efficiency producers and we have yet to regret any part of our investment.

We try to keep a milking herd of twenty-five to thirty cows all the time, so naturally our first thought was to reduce labor and cost in caring for them. The possibilities of milking machines came to our mind and after a little investigation we installed one and have now used it successfully for more than three years, slightly over eight months each year. We find during the winter time when we have little outside work and our regular man must be kept employed, that it is cheaper to have him help us milk by hand. During the rest of the year, however, it is a wonderful help to us. I have milked twenty-five cows in an hour with it by myself at an operating cost of fifty cents. That is thirty cents for my labor, our regular pay for a man nowadays, twelve cents for gasoline for the 4 H. P. engine, and eight cents for lubricating oil. Wear and tear cost I cannot figure yet, as we are still using the same rubber tubing which came with the machine and have had practically no expense for repairs. One of our neighbors has not missed a milking for some months with his machine, which is just like ours, and he uses it for his hundred cows. He has twelve units while we only have two. We find that the cows take kindly to it and we have never had any udder trouble from it. Of course we have a silo and track carrier to haul feed and litter to and from the cows, but I want to tell you of our cable line between the barn and springhouse. It only cost $25, but father has often said it is one of the best improvements we made. It is a ¾-inch steel cable 400 feet long, one end anchored in the barn wall and the other to a post which is well braced. There are two supports in this distance, so now we can haul to the barn all the cans, machine parts, etc., and take the milk to the spring without effort of pushing a cart through mud or snow.

Handling the Horseless Harvest

The tractor, however, I guess, has been our greatest labor saver, because it has made possible several of the other things. We not only plow and harrow with it, (and by the way, this fall we did not plow our silage corn stubble for wheat, but hooked a double acting cutaway harrow, followed by a spike-tooth harrow, to our tractor and by going once over the field lapping one-half each time, made it ready for the drill) but we crush stone, saw wood, load and haul hay, cut and load corn, fill silo, grind feed and cut wheat. Right now we are having our first experience grinding corn with it. We rigged up the mill alongside the corn crib and get meal at almost no cost, whereas otherwise it would take us at least three hours to make a round trip to the public mill, to say nothing of time spent bagging corn, etc., and may be a return trip for it next day, and all this time paying a man thirty cents an hour. At silo filling time it was a wonderful help and money saver. We have our own cutter, blower, corn harvester, with bundle loader, etc., so by trading labor with one neighbor and hiring another one's tractor we made quick work of the job.

Buildings on the Trimble farm which know the click and hum of modern methods

One of the pictures shows our tractor hauling a load of hay into the barn by means of a rope and pulley. This year we harvested ten acres of hay practically without touching it by hand. The hay rake-loader and tractor put it on the wagon and hay fork and tractor took it off. The horses were only used for mowing, as they could do it quicker than the tractor.

Now I want to tell you a little secret. We didn't pay cash down for all of our new equipment, although it is all paid for at this time. If we had waited to do that I guess we would have been waiting yet while the extra help walked off with our money, if we could have found them to do the work, and a decreased production would have kept us from making what we did the past three years. First we figured about how much we could save by the purchase of something new then we paid for it if we could, or fixed it up with the dealer. Why shouldn't we? Who ever heard of a city paying cash down for its first waterworks, a railroad for a new line, or a manufacturer for a lot of new machinery? They are all productive investments and soon pay for themselves. That is what we decided ours were and it didn't take them long to get us the money to pay the bills. We found the dealers willing to make favorable terms with us and we treated them right. I presume if we were going to do the same thing over again this year we would have to invest more than we did, but as farm labor is scarce and continually wanting more money, farm products still high, and milk, for instance, still going up, I cannot see why any one should hesitate getting sufficient equipment.

For a great many years we made and sold butter from our herd and would be doing it still if the demand for whole milk in our nearby city had not made it at least temporarily more profitable to sell milk. However, we now miss the buttermilk and skimmed milk for our pigs and young stock and if the price of milk goes down again we will return to butter. We have a small steam boiler in the milk house and used a steam turbine separator to get the cream. When using our first hand separator we found it was difficult to keep up the correct speed if we did not want to lose butter-fat in the skimmed milk, but I presume that this difficulty can now be overcome with the speed indicators and fixed feed arrangements. With our turbine we did not have this trouble, and while the milk was going through could begin washing up with plenty of hot water and steam which our boiler provided. With our butter route we had established quite a trade in buttermilk and cottage cheese. We also found it a ready outlet for many other farm products, but all this meant more work and as we could not pay the prices demanded for this extra help we changed our plan in keeping with the trend of the times.

This little tale would hardly be complete unless I told you about our new automobile and the unexpected part it plays in farm efficiency. It is a medium priced machine, and while this is the first year we have had it I hardly see now how we could get along without it. It has made quick trips for repair parts, secured help in a hurry and been used for hauling potatoes, veal, dressed pigs and many other farm products. Now when the roads are full of ice its greatest use is saving the horses in hauling the milk to the city. In fact, we have found so many hauling uses for it that we are now considering the purchase of a truck.

What the coming season holds for us farmers, except to produce more, it is hard to tell. It will have no terrors for us, however, as we gave all our equipment a good try-out this year and know that two of us can now do more than four men used to do.

The Practical Farmer

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.
EDWARD T. WALKER, Managing Editor
THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS
W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE
F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES
J. C. Billingslea, 119-123 W. Madison St., Chicago.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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DECEMBER 15, 1917

A MERRY CHRISTMAS to all The Practical Farmer Family!

This is going to be a "different" sort of a Christmas, isn't it—our first war-time Christmas in a generation. This difference will vary in its manifestations in the millions of homes throughout our country very greatly; in some the pinch of the increased cost of things will curtail the number and value of presents and lessen the luxuries we are accustomed to indulge ourselves in at this season almost to the point of extinction, while in others—homes which have profited by "war brides" and whose men are engaged in the businesses which have benefited by the necessities of the war—there will be an unusual lavishness and extravagance—a wastefulness which is shocking in such times as these. In other homes where money is not scarce—where there is enough to meet all the increased expenses and plenty to spare for luxuries and festivities—there will be modified and restrained celebrations of the great festival, sobered by the fact that our nation is at war and our sons are in the cantonments or at the front—and let us hope that these latter homes are in the majority amongst us! For while this is not a time for hoarding, either of money or goods, it's high time we all realized that extravagance and wastefulness are unpardonable sins and that what we can spare after meeting our own necessities belongs to our country, its soldiers and our Allies in this hour of need.

A man said to me the other day, "Our farmers don't know we're at war yet!" I laughed at him, but afterwards I wondered just how much of a grain of truth there might be in what he said. In the cities and towns we have the war and its accompaniments thrust before us at every turn, every hour of the day—and night—in the papers, morning and evening, on the bulletin boards, in the street cars and shop windows; uniforms are almost as common as civilian dress upon our streets, in our churches and theatres—yes, and in our homes; soldiers and nurses back from the front address us in our lecture halls, and at every corner we are appealed to for subscriptions to Red Cross and Y. M. C. A. funds, for subscriptions to Liberty Loans, for the relief of the peoples of our Allied Nations. Yes, the townsman knows his country is at war, yet many have turned the deaf ear and the blind eye to her needs.

But with the farmer it's different. He reads—yes, certainly; he has read the declarations of war, the doings of Congress and the various commissions appointed to supervise the different phases of the war and our national life under new conditions, the news of battles in France and Italy, and the progress of the revolution in Russia. Here and there a son or a neighbor leaves for the cantonments or the front, volunteers or is conscripted. And that's all! The rest of his time is absorbed by the problem of producing the food to feed the Nation—and the world—the daily grind which has to go on in peace and war—only intensified now by the one cry that has been dinged into his ears, "Produce more!"

A Chicago banker not long ago rather bitterly criticised the farmers of the Nation for what he styled their "lack of patriotism" because they did not purchase what he and his associates thought was their share of the Liberty Bond issues. What nonsense! Ridiculous!! There is no more patriotic class in America than our farmers—none more loyal and devoted! And the farmer will buy his share of the Liberty Bonds once you show him what his share is and how he can spare the money and yet raise and harvest the big crops which are expected of him. If the managers of the Liberty Loan campaigns would devote more effort to reaching the ear and the pocketbook of the farmer instead of criticising him his bond subscriptions would be larger. There are posters, billboard displays, newspaper and street car advertisements, parades, lectures, personal solicitations from house to house, from shop to shop, in the theatres, hotels, on the street—everywhere—to reach the townsman and secure his subscription for Liberty Bonds. To reach the farmer no concerted or systematic effort is made—and then he is criticised for not stepping up to the counter and handing over his money!

That our readers are anxious and willing to help in every good cause is manifest by the response to the appeal in our issue of December 1st for subscriptions to the war work of the Pocket Testament League. And yet there are more who could and should help. Perhaps some of you missed the article by Mr. Howard—if so, look up the December 1st issue and read it now—page 402. Then let us hear from you!

On page 435 of this paper the American Red Cross invites every one of our readers—earnestly, urgently—to become one of its members right now. We join in urging that every farmer become a Red Cross *member* at least—a Red Cross *worker* if possible. The organization needs you—and you need it.

EDWARD T. WALKER.

Is One of These Prizes for You?

EACH year we have a series of special issues on Horticulture, Poultry, Gardening and Live Stock, and we are planning now our issue for January 15th, which will make fruit raising the main object. For the articles to use in it we will pay thirty-three dollars in special prizes, as follows:

$15 for the best article
$10 for the second best article
$8 for the third best article
$5 for the fourth best article

To compete for these prizes the articles must reach us not later than January 1, 1918. This is only a short time off—too short for the persons who have to study up the subject in books before they write, but plenty long enough for those who write from their own experience. It is experience stories that we want, no matter whether it was with apples, pears, peaches, grapes, strawberries or any other fruit or berry grown in the Middle Atlantic States. While we prefer these articles to be about 1000 to 1200 words long, you may have noticed last year that some of the prize winners were considerably shorter. The literary style with which an article is written, of course, counts for something, but is as nothing compared to the ideas which it contains. Why not sit down tonight and write us, not an article, but just a sort of letter telling what you did to succeed in your particular part of the fruit business. It may not only bring you the most you have ever received for a letter, but be the means of helping hundreds of others who in this crisis for food are looking for all the information they can find to guarantee future crops in spite of present conditions.

By way of advance notice we might say that our Poultry Special will appear February 15th, Garden Number March 1st, and our Live Stock and Dairy Number March 15th, and that we will offer four prizes as above for each one of these special issues.

The Big Congressional Job

DOWN in Washington a few days ago Congress met and will face for some months to come the mighty task of guiding us safely through the period of this war. It is not alone necessary that they provide means of raising men and money to fight our battles across the ocean, but upon them falls the burden of keeping things moving at home in such a way that the war may be won with the least hardship possible. It has always been their thought to keep the financial world steady, industries free from panic and the great mass of the people satisfied, but this year a new and larger problem remains to be solved. American agriculture is facing a crisis all of us ought to realize now if we haven't before. When we hear of the great task resting upon us to keep parts of Europe from starving and consider the conditions under which we must produce even enough food for ourselves, we stop and wonder what the end will be. Heretofore little attention has been paid to the farmer and his problems except to continually advise him to produce more. Small account was taken of his position in the work of the world and no one cared so long as there was plenty to eat.

President Wilson in his message to Congress a few days ago showed that one phase of the national problem is to receive attention, when he said: "The farmers, for example, complain, with a great deal of justice, that while the relation of food prices restricts their incomes, no restraints are placed upon the prices of most of the things they must themselves purchase; and similar inequities obtain on all sides."

Price regulation will be useless, however, if farmers have not the help to produce the needed supplies. What Congress will do regarding farm labor remains to be seen, but certain it is something must be done. The New Jersey Secretary of Agriculture, Mr. Alva Agee, on another page suggests one plan; others have been talked over, but the one which is finally adopted must work the least hardship and at the same time guarantee sufficient labor next year to produce the crops for which the world is calling.

The Secretary of Agriculture Reports

SOME of the results of the spring agricultural conferences, inauguration of food administration, passage of food production act, expansion of the extension work and the publication, between April 1 and November 1, of forty-four million pieces of agricultural information, are found in the 1917 report of the Secretary of Agriculture which has just been issued. Summing up, the Secretary says:

"The spirit revealed by the farmers and the results of their efforts during the present year indicate that they recognize the responsibility resting upon them in this emergency. I am confident that they will patriotically continue to assume and to bear their full share of the country's burden. The farmers of the Nation have always shown their devotion to the cause of freedom and have not been slow to respond to their country's call for men and means to defend its rights."

Expressing some of the results of production in figures the Secretary finds according to the revised estimates that our corn crop is approximately 3,191,000,000 bushels, while a total of all the cereals is over a billion bushels more than last year, but nearly two hundred million bushels less than in 1915. When one considers that the carry-over of cereals from last year was much below the normal and that a large percentage of the 1917 corn crop is soft, the totals lose some of their magnitude. This year's crops of white and sweet potatoes and perishables were the largest on record and well that they were, because the demand for them is also the greatest on record.

While the report seems to show that we did well this year we are about to face another one when conditions may not be as favorable. Reports from some of the Eastern States already show that the hoped for increase in the fall wheat and rye acreage did not materialize on account of lack of sufficient labor. Although trying times may be ahead, surely we farmers will not have it said about us that we saw our duty and failed to do it.

Bulletin Helps for Farmers

"Marketing Eggs by Parcel Post" is the title of Farmers' Bulletin 830. It presents conclusions from investigations made by the Office of Markets and Rural Organizations in co-operation with the Post-office Department and gives detailed information as to the use of the parcel post.

"House Rats and Mice," the animal pests which annually destroy property in the United States valued at over two hundred million dollars, are fully treated in Farmers' Bulletin No. 896, bearing this name. Directions are given for constructing rat-proof buildings and several ways of destroying these rodents are given.

Either of these Farmers' Bulletins may be obtained free by addressing the Division of Publications, Department of Agriculture, Washington, D. C.

Soil Management for Vegetable and Truck Crops

A. E. GRANTHAM. (Concluded from December 1st issue)

Under some conditions the soil will be well enough stocked with humus and in other cases a great amount of organic matter may make undesirable conditions for the planting of the truck crop. In case the legumes are not plowed under, they may be cut for hay, or allowed to mature for seed. Soy beans and cowpeas have the advantage, when properly sown, of completely covering the ground to the exclusion of weeds. This is an important factor in handling truck lands where the heavily fertilized land is likely to encourage a heavy growth of weeds if steps are not taken to check them.

These legume crops have also, through their root action, an ameliorating effect on the texture of the soil on which they grow. That is, land that is inclined to be stiff can be made friable and easily worked through the growing of these crops. One of the best ways of smothering out weeds in summer is to sow the land to cowpeas.

A winter cover crop serves two purposes upon a soil in a latitude of mild winters. The cover crop prevents the blowing about of the soil, and second, all soluble plant food—the residues from heavy applications of fertilizers to the truck crops—will be taken up by a winter legume and not allowed to leach.

As a source of organic matter, legume catch crops are cheaper than stable manure, and will serve practically the same purpose. The writer does not advocate the exclusive use of green manure crops, but believes that much of the stable manure now used might be dispensed with if greater attention were paid to legumes. It is true that the organic matter of manure has a rapid disintegrating effect in the soil, and a slight application of stable manure, together with legume crops, will give practically the same results as stable manure alone. Practice in the past has taught that stable manure decays much more rapidly than organic matter from legumes. This is not necessarily true provided the legumes are plowed under at the proper stage of maturity, and the trucker has it within his power to turn under the legume crop at any stage of maturity.

Legumes for green manure surpass stable manure in the following points. They are cheaper from the fact that organic matter is already over the land, and second, the initial cost is less. The cost of one ton of manure at the lower end of the Delaware Peninsula will buy and pay for sowing an acre of Crimson clover. Then a good crop of Crimson clover or vetch will add as much nitrogen to an acre of land as 12 to 18 tons of stable manure. The use of stable manure often introduces noxious weeds and plant diseases. Stable manure is one of the best cultures for certain fungous diseases, which are often disastrous to truck crops.

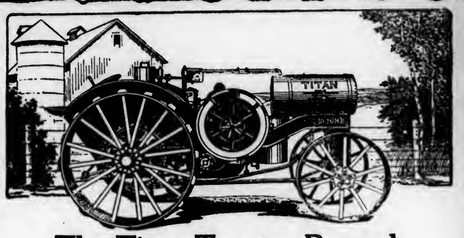
One ton of Crimson clover hay will contain three or four times as much nitrogen as a ton of stable manure. Other comparisons show that a good crop of green manure will furnish as much nitrogen as several tons of stable manure. The Delaware Experiment Station has demonstrated that the fall growth of Crimson clover will furnish 100 pounds of nitrogen to the acre, which is equivalent to 600 or 700 pounds of nitrate of soda. Since a good growth of Crimson clover can be secured in the fall, plowing may be done as early in the spring as the requirements of the crop demand. Organic matter turned under does not become available immediately, but through its decay puts the soil in a better physical condition, so that fertilizers will act to the best advantage.

Trucking soil should be kept at a high state of efficiency. This can be kept up with the use of considerable organic matter, as the best results from the fertilizers will not be had without plenty of moisture. Legumes have an advantage over all other crops which might be used for green manure in that they are able to increase the stock of nitrogen in the soil. In no other way can the nitrogen of the air be drawn upon for the use of plants. The frequent use of green manure will necessitate occasional liming for such crops as require a neutral or alkaline soil. Most truck crops respond to liming; beans, peas and tomatoes do not seem to be affected by liming. Care should be taken to avoid liming of land previous to the planting of Irish potatoes, as the alkaline encourages the growth of certain fungous diseases which produce scab of the potato.

Vetch has some advantages over Crimson clover as a winter legume crop. Having a larger seed it may be covered deeper in the soil, thereby avoiding the failure from drought which comes from the shallow sowing of Crimson clover. But this crop must be sown as early as Crimson clover to get good results. Such crops as onions, when grown for seed, early potatoes, early cabbage, peas and old strawberry beds, may be followed by cowpeas or soy beans, and the season will allow these crops to mature. Late potatoes, bulb onions, late cabbage, tomatoes and melons may be sown to clover before the crops are removed. Seed potatoes may be followed by Crimson clover in some seasons, although generally the crop will come off too late to get a growth of Crimson clover before winter. In such cases a crop such as rye might be used, as it will prevent further leaching of the soil during winter.

It may not be desirable or practical for the trucker to rotate his crops in a regular fashion. The use of legume catch crops will serve this purpose very well, in that they tend to renovate the land and do away with those conditions which may induce diseases in the truck crops. Then, too, the land at the disposal of the trucker may not be of sufficient area for rotation. It may be necessary for him to use the land several times for the same or similar crops. In this case he would have to use stable manure between the regular crops, as he would not have time to grow legumes.

The Virginia Truck Experiment Station found that the plowing under of a crop of cowpeas produced as good results in growing a crop of cabbage as 20 tons of stable manure. Similar results might be quoted from growers of potatoes after Crimson clover. All of the above tends to confirm the fact that legumes may largely take the place of stable manure in renovating the soil for trucking crops.



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TIGHT BINDING TEXT CUT OFF

Save Plenty of Seed Corn

A. E. GRANTHAM.

The indications are that there will be a great scarcity of good seed corn next spring. The late sumer and fall weather was quite unusual. In many parts of the country frosts fell two or three weeks early, with the result that corn is not well matured. Reports from the Middle West indicate that there is a large percentage of unsound corn. In the Eastern States the weather during September and early October was so cool that corn did not ripen rapidly. This, together with unusually heavy rains, delayed the ripening fully two weeks in many sections. It seems that a late maturing crop, in many cases frosted, is the general condition throughout the corn belt.

Every farmer who has well matured corn of good type should save several bushels more than he will need for his own planting. The price of seed corn will probably be higher than ever next spring. Last April many of the seed houses ran short of the supply and could not meet the demands for a good grade of seed corn. Much of the shelled corn at that time sold for $5 per bushel. Next spring the price will probably be advanced.

Since the corn is not well matured at the time of husking, it will be necessary this season to take unusual pains to see that the grain is thoroughly dried out before severe freezing weather. A large quantity of seed corn should not be thrown in a pile, or even placed in sacks, for a short time, as it is likely to go through a heating process that will seriously impair the germination. If one has not the time to tie up the ears in banches, each ear separated, the best thing that can be done is to spread the ears out on a dry floor in a loft or some other well ventilated place.

It is now the season of the local corn shows and in selecting ears for exhibition it will pay to lay aside all ears that have the desirable characteristics or quality of good seed. The saving of an extra amount of seed corn is especially imperative at this time, as the country is dependent upon large crops of grain next year, and this in turns depends upon the quality of the seed planted. The saving of an extra amount of seed will require additional work, but the prospects are that the farmer will be well repaid for any attention he may give to this sort of work.

Next Year's Wheat and Rye

Estimates from crop reporters in all the counties of Pennsylvania show that the acreage of wheat has increased slightly less than 5 per cent. over the acreage represented in the 1917 harvest, and that the rye acreage has been increased but 1.4 per cent. over this year.

Pennsylvania had been asked by the National Government to increase the wheat acreage 14 per cent. and the rye creased but 1.4 per cent. over this year. weather conditions have practically made it impossible. In many sections of the state corn remained uncut until late in November and in most instances these fields would have been sown to wheat if the soil could have been prepared.

It has been practically impossible to get wheat and rye fields in shape on account of the shortage of farm labor and the unsettled weather conditions of October in many sections of the state. In some of the central and northern counties there were only a few days during the month that there was not rain or snow.

The wheat acreage increase is 68,484 acres and the rye increase 3790 acres. A small proportion of this ground may be plowed under in the spring if there is any severe winter freezing that seriously damages the wheat and rye which is in the ground. The increases in acreage run from 100 to 200 per cent., but in the large wheat growing counties the increase has been slightly over 4 per cent.

There are 1,450,000 acres reported as having been planted this fall with wheat and 267,000 acres planted with rye. Lancaster county shows the largest acreage seeded, more than 135,000 acres, of any county in the state, and is followed by York with 103,000, Franklin county with 93,000 acres and Berks with 76,000 acres.

Berks county leads the state with 17,800 acres of rye planted for 1918 harvest and is followed by Northampton with 16,900 acres and Lehigh with 14,400.

Helping the Wheat Yield

Barnyard manure can be used on wheat ground during the winter to take the place of fertilizers ordinarily applied. From two to four bushels of wheat was returned this year from each ton of manure used in moderate applications at the Ohio Agricultural Experiment Station.

The wheat yield under continuous culture on the experimental farm at Wooster was raised this year from 11.85 bushels to 33.79 bushels per acre by five tons of manure. Eight tons of manure on wheat in a 5-year rotation of corn, oats, wheat, clover and timothy increased the yield from 12.82 bushels to 37.46 bushels per acre. The same application on wheat in a 3-year rotation of potatoes, wheat and clover resulted in a yield of 50.79 bushels per acre, while unfertilized land in the same rotation yielded 34.66 bushels.

RESULTS FROM TOPDRESSING WITH STRAW.

An experiment field of the Missouri College of Agriculture last season had twenty-one plats in wheat with various treatments, and in early spring when most wheat looked dead and dried up those plats which had been topdressed with manure and straw started off vigorously, showing that they were not badly dried out, although all the rest had been badly injured. When threshing time came the highest yield, 39.4 bushels per acre, was on a plat that had been topdressed with strawy manure, and all of the topdressed plats yielded well. Missouri does not often experience so dry a winter as the last one, but spreading straw on wheat in early winter not only protects it from drying out, but also tends to prevent smothering by ice sheets. It keeps the snow from blowing off, and helps materially in returning fertility to the soil.

Any source of fertility is well worth considering at the present high prices of crops and fertilizers. A ton of straw contains 10 pounds of nitrogen, 1½ pounds of phosphorus and 18 pounds of potassium. At the present high cost of nitrogen and potassium in commercial fertilizers the nitrogen of a ton of straw is worth $2.50 and the potassium is worth $5, making the straw worth $7.50 a ton for fertilizer, in addition to the small amount of phosphorus it contains. Of course, straw has additional value in that it adds vegetable matter to the soil.

Until the last few years straw had to be spread by hand and the task was somewhat laborious, but recently machines have been put on the market for spreading straw rapidly and easily. The practice is gaining in popularity where the spreaders have been introduced.

Leaves Are Valuable

Next spring we will be looking for all the fertilizer we can find, and if plans are made now we can easily have more than usual. In recent years when commercial fertilizers were selling for less than they do now few people would think of saving leaves. Now, however, things are different and Franklin Menges, farm adviser of the Department of Agriculture, has the following to say regarding this source of fertility:

"The composition of the leaves of different species of trees varies. A hundred pounds of leaves as they fall from the trees at this time, partly dry, contain 60 per cent. water, 9 per cent. nitrogen, 2 per cent. phosphoric acid, 4 per cent potassium and about 2 per cent lime. A ton of leaves will contain 18 pounds nitrogen, 4 pounds phosphorus and 8 pounds potassium and about 40 pounds lime. The nitrogen, valuing it at 40 cents a pound, would be worth $7.20, and the potassium, at the same rate, would be worth $3.20. Leaving the value of the phosphorus, the lime and the organic matter out of consideration, a ton of leaves would be worth at the abnormal prices now prevailing, $10.40.

"In order to conserve the fertility contained in the leaves, as well as to make it available and prepare them to be applied next spring on the gardens, they should be composted, that is, piled up in piles 10 to 20 feet square and 4 to 5 feet deep and tightly compacted. Put down a layer of leaves and any other rubbish, such as corn, tomato, potato, cabbage and other stalks, free from disease, to a depth of 12 to 18 inches, compact well and cover the whole with caustic lime to a depth of two inches. Put down another layer of leaves to the same depth and cover with lime the same as before, and so on until the compost heap is 5 feet deep. Leave it until the leaves begin to break up and become fine, then fork it over and pile up to a depth of 4 feet. Continue this operation whenever necessary during the winter and in the spring the compost will be in splendid condition to be applied with the seed and plants as a fertilizer."

Trolley used by Mr. Trimble for conveying utensils and milk between barns and springhouse, a distance of 400 feet

Destroying Fence Posts

Wood decays because of the growth in it of a plant called fungus, which lives on the wood tissue and causes rot. Wood will never decay if the fungus plant can be kept out of it.

Covering wood with paint will prevent the fungus from entering. The plant spreads by seed-like spores which fall on moist wood, develop, and grow into the wood. As the fungus needs moisture, wood that is dry will never decay. If the wood is poisoned the fungus plant cannot develop for it is deprived of its food.

According to Prof. J. A. Ferguson, of the forestry department of the Pennsylvania State College, painting wood with several coats of hot creosote will poison the outer layers of the wood and prevent the growth of fungous plant. The wood must be well seasoned and dry so that the creosote will soak into it.

The creosote can be made to sink deep into the wood if the wood is first boiled in the creosote and the mixture left to cool, as it is thus driven into the wood by atmospheric pressure. Fence posts of quickly rotting wood treated in this way can be made to last from fifteen to twenty years. This treatment will cost from six to eight cents a post.

Annnual Pensylvania Farmers' Week

The annual Farmers' Week at the Pennsylvania State College will be held this year on Wednesday, Thursday, Friday and Saturday—December 26, 27, 28 and 29. Although the period has been reduced to four days the program indicates that a large amount of practical information is in store for those who attend.

Lectures and demonstrations will be given in all phases of agriculture, including vegetable gardening and floriculture. A special home economics program has been arranged for the women who attend and also for the boys' and girls' club members. Lecture periods, each one hour in length, will begin each day at 8.30 A. M. and last until 5 P. M. Double periods will be used when necessary for practicums and demonstrations. Evening programs will be general, and largely social or recreational.

Educational exhibits will be staged by various departments of the school of agriculture. Complete programs and other information may be obtained by addressing M. S. McDowell, State College, Pa.

Meeting for Boys and Girls

For some years past it has been the custom of the New Jersey State Agricultural College to invite boys and girls to visit the College during Christmas vacation. A special program is provided for the young people, consisting of an inspection of the college buildings and grounds, including the college farm, and lectures by members of the college and experiment station staff. The meeting this year will be on Thursday and Friday, December 27 and 28. Programs can be obtained from the state leader of boys' and girls' club work, at the Agriculeural College, New Brunswick, N. J.

Be "U. S. Protected" For Winter Barnyard Tasks

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Worth While Poultry Suggestions

F. V. L. TURNER

Price regulation of poultry and its products can affect only those who have gambled with the stored product—so far there has been no attempt by Food Administration officials to destroy all profit—a *reasonable* return to speculators has been allowed.

The fresh egg still enjoys all of the price that demand creates and no regulation can affect it. Next spring's crop of eggs is the one thing that the producer must control against speculation. Co-operative handling and storage is the solution.

So-called one-eyed colds and all other colds can be effectually relieved by simple methods. Provide a 1 per cent. solution (1 teaspoonful to 100 teaspoonfuls of water) of any standard coal tar base disinfectant and germicide, into which solution dip the entire head of the affected bird, quickly removing from the dip. Follow this treatment every day and in addition give one dose of the following mixture: Powdered gentian root, 4 drams; powdered ginger, 4 drams; sulphate of iron, 2 drams, hyposulphite of sodium, 1 dram, and salicylate of sodium, 1 dram. Mix thoroughly (the druggist will do this) and give 4 grains to each fowl once a day. To easily administer the dose secure 100 No. 4 gelatine capsules (cost 15 cents per 100) and fill with the powdered mixture by pushing both ends of the capsule into the powder and then closing together. The quantity of powder given above should not cost over 30 cents for the entire lot. From five to ten doses will relieve a cold.

Roup has no place in the well regulated establishment—relieve the colds as quickly as they appear and there will be no roup.

Sneezing is the evidence of a cold, so is a rattle in the throat—the remedy given above will relieve either or both.

Feeding and Housing Geese in Winter

ESTHER MARIE BETTS.

For those who are expecting to carry a flock of geese through the winter, now is the time to provide shelter for them. While they do not require much protection, they must have some provided. A long, low, waterproof shed, arranged so that it can be cleaned easily is all that is necessary. So long as it is dry there is no danger of its being too cold. If they have a pond or stream of running water they will swim on that and keep their feet from freezing. Plenty of fresh air must be provided in the house and the floors should be covered with dry bedding. A damp place to sleep is apt to be fatal to young birds and will leave the old ones weak and unable to produce the greatest number of eggs in the spring. The house will need to be cleaned oftener than for hens. The fertilizer is splendid for trees and all kinds of fruit.

For birds which have lived almost entirely on grass and green stuff, a change to feed composed entirely of grain is not advisable. Geese will live largely on grass and roughage, even in winter. Clover chaff, alfalfa or dried lawn clippings, mixed with vegetable parings and a little grain make a splendid mash. We have found that a mash of hot water, mixed with one part bran or middlings, preferably middlings, with three parts clover chaff, or even more than that, for a morning feed with corn at night, makes a most satisfactory ration for the cold months. Alfalfa can be substituted for the clover. Geese must have plenty of water the same as in summer. In extremely cold weather it pays to warm both food and drink. The birds can remain out of doors except on the coldest days, but should always be put in at night. Even if they do not freeze their feet, it lowers their vitality to remain out at night. Corn fodder or ensilage can be fed to some extent, I imagine, though it may take them some time to get used to it. About the first of February it is well to increase the amount of grain fed until they have at least half by time for the laying season to begin. Do not make the mistake of feeding all grain, even when they are laying heavily. Clover chaff or ground alfalfa mixed with grain, makes a splendid feed at all times of the year. Though the geese may not like it at first, yet if it is mixed with the grain thoroughly and they are made to clean it up, they will soon become fond of it and will produce eggs at much lower cost than on grain alone.

Wheat, Poultry and Patriotism

JOHN B. ALDEN.

Until recent months wheat has always been our principal grain ration. We have for some months stopped feeding it altogether, not because of its high cost, but because of the appeal of patriotism—the needs of our allies. With a flock of over 1600 hens and pullets this means, of course, several hundred bushels of wheat a year saved to strengthen a righteous cause and help end the war.

The saving is made, we think, with little, if any, detriment to the egg product of our White Leghorns, because of our method of feeding, which is a little different from that of any other poultrymen we know.

Years ago, when our flock was smaller, we made large use of sprouted oats, carefully cultivated in first-class drawer equipment. As the flock increased the labor was found onerous. By observation we noted that hens, even when "greenness" was most attractive always "went for" the seed end. So in time we did away with the work of the "drawers" and have simply soaked the oats in galvanized pails for from two to four days, depending on heat and other conditions. Experience tells what is best as to the amount of water and the best temperature. In winter we keep the pails in the house furnace room; in the summer in the sunshine or in the shade. If the oats sprouts, very good; if it only swells and becomes more tender, good. We then mix it with dry cracked corn, half and half. The hens like it thoroughly and thrive—come with a good appetite every time.

Oats for some months has been the cheapest of grains for chicken feed. Chemically it is as good an all-around ration as wheat, and fed in this way we believe results are about equally good as with wheat. The proportions of corn or oats may doubtless be increased or diminished advantageously according to conditions.

Besides the grain ration we keep always before the chickens a rich mixture of dry mash with plenty of the best grade of beef scrap or fish scrap. For some time we have been using, in preference to anything else tried in that line, a high-grade fish preparation, which mixes with ground feeds most perfectly, and seems to produce the best results.

New Jersey.

This, the month of December, spells success or failure with the early hatch—those pullets that are not laying are failures.

Prepare for Early Hatching

Early hatching next spring is necessary if the desired increase in production is attained, warns Clarence Dubose in a recent statement from the Department of Agriculture. It is also necessary, during the winter, to save young hens and pullets, so they will be on hand for stock in the spring. The stock of the nation has been reduced considerably this fall by a widespread sale, for market, of young hens and pullets. Therefore it is necessary to conserve stock now, or else the shortage may interfere seriously with the production program. In view of the stock shortage, to kill a good hen now is to reduce the potential egg production next year anywhere from 5 to 12 dozen eggs.

Early hatching in the spring will increase the number and size of fowls and the number of eggs produced next year. It will result in bigger birds, and birds that will lay in the winter months.

The hatching season varies in different parts of the country, running through February, March, April and May, generally speaking, although in some parts of the Southwest may start in January. The season commences earliest in the Southern and Southwestern States, and latest in the extreme northern parts of the country. In the Middle West, where ten states in the grain belt produced half the poultry of the entire nation as shown by the last census, the hatching season has been during the late winter and early spring months.

Every poultry keeper is urged to start the hatching season earlier than usual next year, either by incubation or natural methods if the hens will sit earlier. The chickens first hatched in the spring are the ones that are largest in the summer, that mature first in the fall, and that lay eggs in the winter. Furthermore, they are the ones that will want to sit early the following spring which, in turn, will hatch earlier chickens—and so the cycle will continue. On the contrary chickens hatched late in the spring do not mature until so late in the fall that they will not become winter layers. They will not sit until late the next spring, and so another cycle of late maturing, late laying fowls is established.

Selecting Hens Increases Egg Yield

Some interesting demonstrations in the value of selecting poultry to secure increased egg yields and larger profits are being conducted in Pennsylvania by H. C. Knandel, in charge of poultry husbandry extension at the Pennsylvania State College. Tests made by Mr. Knandel show that egg yield is frequently doubled or tripled by judicious selection of birds.

Recent poultry selection demonstrations in Lawrence county have developed interesting results. In one case a two-week record kept by one farmer shows that 41 good hens laid 241 eggs as compared with four eggs laid by 41 poor hens; in another case a record of 19 days shows that 28 good hens laid 111 eggs as compared with 27 eggs laid by 47 poor hens.

In the latter case the college representative selected the hens September 22nd and no eggs were laid by the poor hens until September 28th. During a two-week period 19 good hens in one flock laid 152 eggs, while 13 poor hens in the same flock laid two eggs.

Practice poultry selection and increase your returns. The good winter layer has bright eyes, legs set well apart, pale beak and shanks in late fall and early winter, a strong, broad back, a deep and full abdomen, a deep rounded chest, and is vigorous and active.

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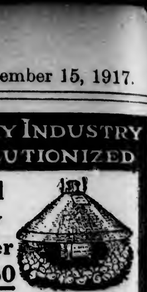

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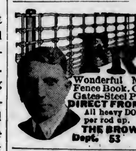

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Successful Trapping Methods

CHARLES H. CHESLEY

The fox is, perhaps, the most difficult of the smaller fur bearers to lure into a trap. Reynard seems to have an inbred knowledge that warns him of danger and an intelligence rather above that of such animals as the skunk and muskrat. However, it is quite possible to capture a goodly number of foxes in sections where they abound, and the trapper should not overlook this sly animal. North of the Mason and Dixon line the red fox is the more common, while farther south the gray is the leading species. The former brings a good value this season, being quoted as high as $35 for the best northern pelts. We shall not expect to get any that are worth that price in the Central States, though, and probably not south of the Canadian boundary. Our common foxes should bring $15 at the lowest, however, if the pelts are anything near prime. The gray fox is not worth more than one-fifth as much.

We have had good success by making sets in spring holes. This is perhaps the best method to employ until cold weather comes on, then it will be necessary to make land sets. The spring set is made in a pool of shallow water, where the trap is set either close to the bank or a foot or so from it. In both cases the bait is placed six inches or more beyond the trap and partially covered with leaves or grass from the bottom of the pool. Where the trap is set a thin piece of turf is used for a covering and the idea is to give the impression that a small hummock or moss-covered stone happens to be in a convenient place for Reynard to place his feet when reaching for the bait. He hates to get his feet wet and the success of the set depends upon this characteristic of his. In making sets for the fox, everything must be left in a natural manner and the trap should never be handled with the bare hands. Wide-jawed traps are best and most trappers use the kind that have the springs under the jaws, rather than those that have them extending from either side. It is advisable to carry a short-handled hoe and a sharp-pointed iron pike to use about the sets.

A good land set for the fox may be made in a path, known as a blind set, or in a so-called "bed." The "blind set" is one without bait and should be made where the animals are likely to pass. Paths in pastures remote from farm houses are best suited to this method. A small piece of turf is removed and shaved down to a minimum of thickness. Under this a small hole is excavated to hold the trap, together with the chain, the trap is set and the turf placed back in position. If the work is done skillfully, so the passing animal will not note any disturbance of the sod, he is quite likely to place his foot in the trap. To make this more likely, a weed or bush is broken or bent down on either side, so the approaching animal, in leaping over the obstruction, will jump directly into the trap.

The "bed" method is employed by many trappers. In the first place, the sod and soil are removed from a circular space perhaps two feet in diameter and the soil carried away. This should be done carefully. First spread a cloth or paper on the ground, so every particle of the removed material may be taken away. Carry it to some distance and dump it where passing creatures will not be likely to see it. Fill the excavation with chaff from the hay loft and place bits of bait in the bed. Do not place the trap in position at once. Wait until the animals are coming to the bed regularly for the bait, then place two or more traps in position. A good time to do this is in the early morning while the dew is still on the ground. The drying of the dew or melting of the frost will help to destroy the human scent.

Both of these sets will take other animals. The skunk is frequently taken in the path sets and also on the beds. The same is also true of the raccoon and the opossum. The wild cat, where that creature is found, is also taken in the "bed" sets. Do not fasten traps set by these methods. When setting in water holes, a clod or drag may be used, but a better way is to have the traps equipped with grapples, some six inches long. These can be hidden more readily in the blind and bed sets, and unless the ground is entirely free from underbrush, no captive fox can get far without being tied up. The chain should be about three feet long. Old meat with a strong odor, the stronger the better, is the best bait for foxes. After snow comes on, one can still use the blind and bed sets to some extent and occasionally springs may be found that do not freeze readily. Such places may be used for water sets. Traps for setting in the snow may be whitened by immersing them in lime water. White tissue paper or thin white oiled paper may be used to cover the pan of the trap to keep it from freezing into the snow.

When making sets for the fox, approach the place selected from one direction and leave in another. Stand in the same tracks while doing the work. A lot of tracks about the set will make Reynard instantly suspicious. After the place for the trap has been prepared, go away to a considerable distance and get the trap ready to place in position, then approach as indicated above. Never expectorate or leave anything about the set that will retain the human scent. It is a case of matching wits with wisdom when trapping the fox.

A few words in regard to selling the furs may not go amiss. Many trappers do not get full value for their catch. The country is filled with buyers during the early winter and they are usually ready to take advantage of the ignorance of the man who has the fur to sell. Most buyers who travel about the country will offer about one-third what the pelt is worth. If the trapper happens to be posted on its value, he can usually get a fair price. Pelts are graded according to the locality, time of catching and size, hence any one who has pelts to sell should write for price lists and instructions as to grading. Even if the skins are sold to a local buyer, the price lists will be found useful, for they will give an idea of what furs are worth. Prices vary considerably from year to year. One season a certain kind may be in style and the next something entirely different. One of the most popular skins this year is the red fox. Last year it did not sell for such a high price. The mink is also higher this year than for some years past.

We have found it safe to ship furs direct to a reliable firm, relying upon them to give a fair grading. The buyers who advertise in reliable farm publications have, without exception, been honest in all our dealings with them.

A two-line report of a Kentucky county agent of the United States Department of Agriculture speaks volumes. This is his succint account of his work: "Had a meting at the courthouse. I talked on whipping Germany with three B's—bread, bacon, and beans.

A Good Way to Break Boulders

FRANK A. HUNTINGTON.

I want to describe how I recently broke up a boulder that was about 11½ feet thick, 15 feet long and 10 feet wide. It was of soft stone and imbedded in the ground 10 feet deep, so that only about 1½ feet of the stone appeared above the surface.

Some blasters would have tried mudcapping this boulder, but they would have failed to break it that way because soft stone doesn't break well under a mudcap charge, and besides, it is practically impossible to break up a stone imbedded in the ground that way with a mudcap charge.

My method was as follows: I drove a long-pointed steel bar full length into the ground alongside of the stone. Two of these holes were made, one on each side. I then placed four sticks of dynamite in each hole, an electric blasting cap having been inserted in the top cartridge in each hole. The two charges were then connected up with some fine copper wire and a blasting machine was used to fire the charge. These shots made two pockets well down under the edge of the stone. In these two pockets I then placed two charges of 36 pounds of dynamite; that is, 18 pounds in each hole. These charges were also fired with a blasting machine, as I wanted them to go off at exactly the same instant. Of course, these charges were tightly tamped in the bore holes so that practically the full effect of the explosive was exerted against the rock. The stone being between them, it got the kick from both shots at the same instant.

Before firing the main charges, I put two small charges consisting of a pound of dynamite in mudcaps on top of the stone. These shots lifted the stone to the top of the ground, just clearing the hole and breaking up into a dozen or more pieces. The three largest pieces I was unable to handle and broke them up by placing a comparatively heavy charge under them and a light charge on top of them under a mudcap. The entire cost of the work was $10.

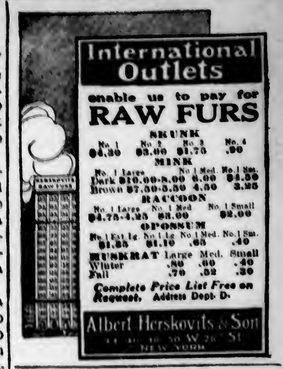
New York.

Highest Yielding Ears Wanted

The Delaware Corn Growers' Association, which holds its Eleventh Annual State Corn Show in Middletown, Del., January 2-4, 1918, will have one class open to the world. For the ten ears of corn shelling the most grain by weight, is offered five dollars in gold; 2nd, three dollars; 3rd, two dollars. A moisture test will be made of each sample to determine the exact dry weight. All entries must be received by A. E. Grantham, secretary, Middletown, Del., on or before January 2nd. No entry fee is charged non-residents.

It is estimated that the total alfalfa crop for Pennsylvania during the past season was 133,840 tons, an average of 2.8 tons being cut to an acre.

Records show that there are 28,500 silos in use on farms of Pennsylvania, an increase of about 5500 over last year.



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The Practical Farmer

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Edward T. Walker, President Charles T. Walker, Sec. and Treas.

EDWARD T. WALKER, Managing Editor

THOS. H. WITTKORN, Associate

CONTRIBUTING EDITORS

W. F. MASSEY A. E. GRANTHAM W. H. TOMHAVE F. V. L. TURNER J. H. REED

SPECIAL REPRESENTATIVES

J. C. Billingslea, 119-123 W. Madison St., Chicago.
A. H. Billingslea, 1 Madison Ave., New York.
A. D. McKinney, Third National Bank Bldg., St. Louis.

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DECEMBER 15, 1917

A MERRY CHRISTMAS to all The Practical Farmer Family!

This is going to be a "different" sort of a Christmas, isn't it—our first war-time Christmas in a generation. This difference will vary in its manifestations in the millions of homes throughout our country very greatly; in some the pinch of the increased cost of things will curtail the number and value of presents and lessen the luxuries we are accustomed to indulge ourselves in at this season almost to the point of extinction, while in others—homes which have profited by "war brides" and whose men are engaged in the businesses which have benefited by the necessities of the war—there will be an unusual lavishness and extravagance—a wastefulness which is shocking in such times as these. In other homes where money is not scarce—where there is enough to meet all the increased expenses and plenty to spare for luxuries and festivities—there will be modified and restrained celebrations of the great festival, sobered by the fact that our nation is at war and our sons are in the cantonments or at the front—and let us hope that these latter homes are in the majority amongst us! For while this is not a time for hoarding, either of money or goods, it's high time we all realized that extravagance and wastefulness are unpardonable sins and that what we can spare after meeting our own necessities belongs to our country, its soldiers and our Allies in this hour of need.

A man said to me the other day, "Our farmers don't know we're at war yet!" I laughed at him, but afterwards I wondered just how much of a grain of truth there might be in what he said. In the cities and towns we have the war and its accompaniments thrust before us at every turn, every hour of the day—and night—in the papers, morning and evening, on the bulletin boards, in the street cars and shop windows; uniforms are almost as common as civilian dress upon our streets, in our churches and theatres—yes, and in our homes; soldiers and nurses back from the front address us in our lecture halls, and at every corner we are appealed to for subscriptions to Red Cross and Y. M. C. A. funds, for subscriptions to Liberty Loans, for the relief of the peoples of our Allied Nations. Yes, the townsman knows his country is at war, yet many have turned the deaf ear and the blind eye to her needs.

But with the farmer it's different. He reads—yes, certainly; he has read the declarations of war, the doings of Congress and the various commissions appointed to supervise the different phases of the war and our national life under new conditions, the news of battles in France and Italy, and the progress of the revolution in Russia. Here and there a son or a neighbor leaves for the cantonments or the front, volunteers or is conscripted. And that's all! The rest of his time is absorbed by the problem of producing the food to feed the Nation—and the world—the daily grind which has to go on in peace and war—only intensified now by the one cry that has been dinged into his ears, "Produce more!"

A Chicago banker not long ago rather bitterly criticised the farmers of the Nation for what he styled their "lack of patriotism" because they did not purchase what he and his associates thought was their share of the Liberty Bond issues. What nonsense! Ridiculous!! There is no more patriotic class in America than our farmers—none more loyal and devoted! And the farmer will buy his share of the Liberty Bonds once you show him what his share is and how he can spare the money and yet raise and harvest the big crops which are expected of him. If the managers of the Liberty Loan campaigns would devote more effort to reaching the ear and the pocketbook of the farmer instead of criticising him his bond subscriptions would be larger. There are posters, billboard displays, newspaper and street car advertisements, parades, lectures, personal solicitations from house to house, from shop to shop, in the theatres, hotels, on the street—everywhere—to reach the townsman and secure his subscription for Liberty Bonds. To reach the farmer no concerted or systematic effort is made—and then he is criticised for not stepping up to the counter and handing over his money!

That our readers are anxious and willing to help in every good cause is manifest by the response to the appeal in our issue of December 1st for subscriptions to the war work of the Pocket Testament League. And yet there are more who could and should help. Perhaps some of you missed the article by Mr. Howard—if so, look up the December 1st issue and read it now—page 402. Then let us hear from you!

On page 435 of this paper the American Red Cross invites every one of our readers—earnestly, urgently—to become one of its members right now. We join in urging that every farmer become a Red Cross *member* at least—a Red Cross *worker* if possible. The organization needs you—and you need it.

EDWARD T. WALKER.

Is One of These Prizes for You?

EACH year we have a series of special issues on Horticulture, Poultry, Gardening and Live Stock, and we are planning now our issue for January 15th, which will make fruit raising the main object. For the articles to use in it we will pay thirty-three dollars in special prizes, as follows:

$15 for the best article
$10 for the second best article
$8 for the third best article
$5 for the fourth best article

To compete for these prizes the articles must reach us not later than January 1, 1918. This is only a short time off—too short for the persons who have to study up the subject in books before they write, but plenty long enough for those who write from their own experience. It is experience stories that we want, no matter whether it was with apples, pears, peaches, grapes, strawberries or any other fruit or berry grown in the Middle Atlantic States. While we prefer these articles to be about 1000 to 1200 words long, you may have noticed last year that some of the prize winners were considerably shorter. The literary style with which an article is written, of course, counts for something, but is as nothing compared to the ideas which it contains. Why not sit down tonight and write us, not an article, but just a sort of letter telling what you did to succeed in your particular part of the fruit business. It may not only bring you the most you have ever received for a letter, but be the means of helping hundreds of others who in this crisis for food are looking for all the information they can find to guarantee future crops in spite of present conditions.

By way of advance notice we might say that our Poultry Special will appear February 15th, Garden Number March 1st, and our Live Stock and Dairy Number March 15th, and that we will offer four prizes as above for each one of these special issues.

The Big Congressional Job

DOWN in Washington a few days ago Congress met and will face for some months to come the mighty task of guiding us safely through the period of this war. It is not alone necessary that they provide means of raising men and money to fight our battles across the ocean, but upon them falls the burden of keeping things moving at home in such a way that the war may be won with the least hardship possible. It has always been their thought to keep the financial world steady. Industries free from panic and the great mass of the people satisfied, but this year a new and larger problem remains to be solved. American agriculture is facing a crisis all of us ought to realize now if we haven't before. When we hear of the great task resting upon us to keep parts of Europe from starving and consider the conditions under which we must produce even enough food for ourselves, we stop and wonder what the end will be. Heretofore little attention has been paid to the farmer and his problems except to continually advise him to produce more. Small account was taken of his position in the work of the world and no one cared so long as there was plenty to eat.

President Wilson in his message to Congress a few days ago showed that one phase of the national problem is to receive attention, when he said: "The farmers, for example, complain, with a great deal of justice, that while the relation of food prices restricts their incomes, no restraints are placed upon the prices of most of the things they must themselves purchase; and similar inequities obtain on all sides."

Price regulation will be useless, however, if farmers have not the help to produce the needed supplies. What Congress will do regarding farm labor remains to be seen, but certain it is something must be done. The New Jersey Secretary of Agriculture, Mr. Alva Agee, on another page suggests one plan; others have been talked over, but the one which is finally adopted must work the least hardship and at the same time guarantee sufficient labor next year to produce the crops for which the world is calling.

The Secretary of Agriculture Reports

SOME of the results of the spring agricultural conferences, inauguration of food administration, passage of food production act, expansion of the extension work and the publication, between April 1 and November 1, of forty-four million pieces of agricultural information, are found in the 1917 report of the Secretary of Agriculture which has just been issued. Summing up, the Secretary says:

"The spirit revealed by the farmers and the results of their efforts during the present year indicate that they recognize the responsibility resting upon them in this emergency. I am confident that they will patriotically continue to assume and to bear their full share of the country's burden. The farmers of the Nation have always shown their devotion to the cause of freedom and have not been slow to respond to their country's call for men and means to defend its rights."

Expressing some of the results of production in figures the Secretary finds according to the revised estimates that our corn crop is approximately 3,191,000,000 bushels, while a total of all the cereals is over a billion bushels more than last year, but nearly two hundred million bushels less than in 1915. When one considers that the carry-over of cereals from last year was much below the normal and that a large percentage of the 1917 corn crop is soft, the totals lose some of their magnitude. This year's crops of white and sweet potatoes and perishables were the largest on record and well that they were, because the demand for them is also the greatest on record.

While the report seems to show that we did well this year we are about to face another one when conditions may not be as favorable. Reports from some of the Eastern States already show that the hoped for increase in the fall wheat and rye acreage did not materialize on account of lack of sufficient labor. Although trying times may be ahead, surely we farmers will not have it said about us that we saw our duty and failed to do it.

Bulletin Helps for Farmers

"Marketing Eggs by Parcel Post" is the title of Farmers' Bulletin 830. It presents conclusions from investigations made by the Office of Markets and Rural Organizations in co-operation with the Postoffice Department and gives detailed information as to the use of the parcel post.

"House Rats and Mice," the animal pests which annually destroy property in the United States valued at over two hundred million dollars, are fully treated in Farmers' Bulletin No. 896, bearing this name. Directions are given for constructing rat-proof buildings and several ways of destroying these rodents are given.

Either of these Farmers' Bulletins may be obtained free by addressing the Division of Publications, Department of Agriculture, Washington, D. C.

Soil Management for Vegetable and Truck Crops

A. E. GRANTHAM. (Concluded from December 1st issue)

Under some conditions the soil will be well enough stocked with humus and in other cases a great amount of organic matter may make undesirable conditions for the planting of the truck crop. In case the legumes are not plowed under, they may be cut for hay, or allowed to mature for seed. Soy beans and cowpeas have the advantage, when properly sown, of completely covering the ground to the exclusion of weeds. This is an important factor in handling truck lands where the heavily fertilized land is likely to encourage a heavy growth of weeds if steps are not taken to check them.

These legume crops have also, through their root action, an ameliorating effect on the texture of the soil on which they grow. That is, land that is inclined to be stiff can be made friable and easily worked through the growing of these crops. One of the best ways of smothering out weeds in summer is to sow the land to cowpeas.

A winter cover crop serves two purposes upon a soil in a latitude of mild winters. The cover crop prevents the blowing about of the soil, and second, all soluble plant food—the residues from heavy applications of fertilizers to the truck crops—will be taken up by a winter legume and not allowed to leach.

As a source of organic matter, legume catch crops are cheaper than stable manure, and will serve practically the same purpose. The writer does not advocate the exclusive use of green manure crops, but believes that much of the stable manure now used might be dispensed with if greater attention were paid to legumes. It is true that the organic matter of manure has a rapid disintegrating effect in the soil, and a slight application of stable manure, together with legume crops, will give practically the same results as stable manure alone. Practice in the past has taught that stable manure decays much more rapidly than organic matter from legumes. This is not necessarily true provided the legumes are plowed under at the proper stage of maturity, and the trucker has it within his power to turn under the legume crop at any stage of maturity.

Legumes for green manure surpass stable manure in the following points. They are cheaper from the fact that organic matter is already over the land, and second, the initial cost is less. The cost of one ton of manure at the lower end of the Delaware Peninsula will buy and pay for sowing an acre of Crimson clover. Then a good crop of Crimson clover or vetch will add as much nitrogen to an acre of land as 12 to 18 tons of stable manure. The use of stable manure often introduces noxious weeds and plant diseases. Stable manure is one of the best cultures for certain fungous diseases, which are often disastrous to truck crops.

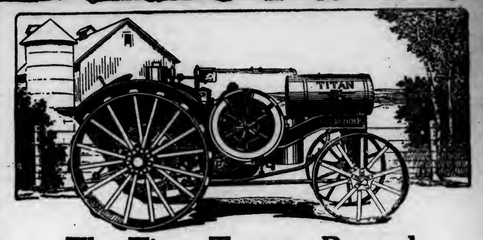
One ton of Crimson clover hay will contain three or four times as much nitrogen as a ton of stable manure. Other comparisons show that a good crop of green manure will furnish as much nitrogen as several tons of stable manure. The Delaware Experiment Station has demonstrated that the fall growth of Crimson clover will furnish 100 pounds of nitrogen to the acre, which is equivalent to 600 or 700 pounds of nitrate of soda. Since a good growth of Crimson clover can be secured in the fall, plowing may be done as early in the spring as the requirements of the crop demand. Organic matter turned under does not become available immediately, but through its decay puts the soil in a better physical condition, so that fertilizers will act to the best advantage.

Trucking soil should be kept at a high state of efficiency. This can be kept up with the use of considerable organic matter, as the best results from the fertilizers will not be had without plenty of moisture. Legumes have an advantage over all other crops which might be used for green manure in that they are able to increase the stock of nitrogen in the soil. In no other way can the nitrogen of the air be drawn upon for the use of plants. The frequent use of green manure will necessitate occasional liming for such crops as require a neutral or alkaline soil. Most truck crops respond to liming; beans, peas and tomatoes do not seem to be affected by liming. Care should be taken to avoid liming of land previous to the planting of Irish potatoes, as the alkaline encourages the growth of certain fungous diseases which produce scab of the potato.

Vetch has some advantages over Crimson clover as a winter legume crop. Having a larger seed it may be covered deeper in the soil, thereby avoiding the failure from drought which comes from the shallow sowing of Crimson clover. But this crop must be sown as early as Crimson clover to get good results. Such crops as onions, when grown for seed, early potatoes, early cabbage, peas and old strawberry beds, may be followed by cowpeas or soy beans, and the season will allow these crops to mature. Late potatoes, bulb onions, late cabbage, tomatoes and melons may be sown to clover before the crops are removed. Seed potatoes may be followed by Crimson clover in some seasons, although generally the crop will come off too late to get a growth of Crimson clover before winter. In such cases a crop such as rye might be used, as it will prevent further leaching of the soil during winter.

It may not be desirable or practical for the trucker to rotate his crops in a regular fashion. The use of legume catch crops will serve this purpose very well, in that they tend to renovate the land and do away with those conditions which may induce diseases in the truck crops. Then, too, the land at the disposal of the trucker may not be of sufficient area for rotation. It may be necessary for him to use the land several times for the same or similar crops. In this case he would have to use stable manure between the regular crops, as he would not have time to grow legumes.

The Virginia Truck Experiment Station found that the plowing under of a crop of cowpeas produced as good results in growing a crop of cabbage as 20 tons of stable manure. Similar results might be quoted from growers of potatoes after Crimson clover. All of the above tends to confirm the fact that legumes may largely take the place of stable manure in renovating the soil for trucking crops.



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Save Plenty of Seed Corn

A. E. GRANTHAM.

The indications are that there will be a great scarcity of good seed corn next spring. The late sumer and fall weather was quite unusual. In many parts of the country frosts fell two or three weeks early, with the result that corn is not well matured. Reports from the Middle West indicate that there is a large percentage of unsound corn. In the Eastern States the weather during September and early October was so cool that corn did not ripen rapidly. This, together with unusually heavy rains, delayed the ripening fully two weeks in many sections. It seems that a late maturing crop, in many cases frosted, is the general condition throughout the corn belt.

Every farmer who has well matured corn of good type should save several bushels more than he will need for his own planting. The price of seed corn will probably be higher than ever next spring. Last April many of the seed houses ran short of the supply and could not meet the demands for a good grade of seed corn. Much of the shelled corn at that time sold for $5 per bushel. Next spring the price will probably be advanced.

Since the corn is not well matured at the time of husking, it will be necessary this season to take unusual pains to see that the grain is thoroughly dried out before severe freezing weather. A large quantity of seed corn should not be thrown in a pile, or even placed in sacks, for a short time, as it is likely to go through a heating process that will seriously impair the germination. If one has not the time to tie up the ears in banches, each ear separated, the best thing that can be done is to spread the ears out on a dry floor in a loft or some other well ventilated place.

It is now the season of the local corn shows and in selecting ears for exhibition it will pay to lay aside all ears that have the desirable characteristics or quality of good seed. The saving of an extra amount of seed corn is especially imperative at this time, as the country is dependent upon large crops of grain next year, and this in turns depends upon the quality of the seed planted. The saving of an extra amount of seed will require additional work, but the prospects are that the farmer will be well repaid for any attention he may give to this sort of work.

Next Year's Wheat and Rye

Estimates from crop reporters in all the counties of Pennsylvania show that the acreage of wheat has increased slightly less than 5 per cent. over the acreage represented in the 1917 harvest, and that the rye acreage has been increased but 1.4 per cent. over this year.

Pennsylvania had been asked by the National Government to increase the wheat acreage 14 per cent. and the rye creased but 1.4 per cent. over this year. weather conditions have practically made it impossible. In many sections of the state corn remained uncut until late in November and in most instances these fields would have been sown to wheat if the soil could have been prepared.

It has been practically impossible to get wheat and rye fields in shape on account of the shortage of farm labor and the unsettled weather conditions of October in many sections of the state. In some of the central and northern counties there were only a few days during the month that there was not rain or snow.

The wheat acreage increase is 68,484 acres and the rye increase 3790 acres. A small proportion of this ground may be plowed under in the spring if there is any severe winter freezing that seriously damages the wheat and rye which is in the ground. The increases in acreage run from 100 to 200 per cent., but in the large wheat growing counties the increase has been slightly over 4 per cent.

There are 1,450,000 acres reported as having been planted this fall with wheat and 267,000 acres planted with rye. Lancaster county shows the largest acreage seeded, more than 135,000 acres, of any county in the state, and is followed by York with 103,000, Franklin county with 93,000 acres and Berks with 76,000 acres.

Berks county leads the state with 17,800 acres of rye planted for 1918 harvest and is followed by Northampton with 16,900 acres and Lehigh with 14,400.

Helping the Wheat Yield

Barnyard manure can be used on wheat ground during the winter to take the place of fertilizers ordinarily applied. From two to four bushels of wheat was returned this year from each ton of manure used in moderate applications at the Ohio Agricultural Experiment Station.

The wheat yield under continuous culture on the experimental farm at Wooster was raised this year from 11.85 bushels to 33.79 bushels per acre by five tons of manure. Eight tons of manure on wheat in a 5-year rotation of corn, oats, wheat, clover and timothy increased the yield from 12.82 bushels to 37.46 bushels per acre. The same application on wheat in a 3-year rotation of potatoes, wheat and clover resulted in a yield of 50.79 bushels per acre, while unfertilized land in the same rotation yielded 34.66 bushels.

RESULTS FROM TOPDRESSING WITH STRAW.

An experiment field of the Missouri College of Agriculture last season had twenty-one plats in wheat with various treatments, and in early spring when most wheat looked dead and dried up those plats which had been topdressed with manure and straw started off vigorously, showing that they were not badly dried out, although all the rest had been badly injured. When threshing time came the highest yield, 39.4 bushels per acre, was on a plat that had been topdressed with strawy manure, and all of the topdressed plats yielded well. Missouri does not often experience so dry a winter as the last one, but spreading straw on wheat in early winter not only protects it from drying out, but also tends to prevent smothering by ice sheets. It keeps the snow from blowing off, and helps materially in returning fertility to the soil.

Any source of fertility is well worth considering at the present high prices of crops and fertilizers. A ton of straw contains 10 pounds of nitrogen, 1½ pounds of phosphorus and 18 pounds of potassium. At the present high cost of nitrogen and potassium in commercial fertilizers the nitrogen of a ton of straw is worth $2.50 and the potassium is worth $5, making the straw worth $7.50 a ton for fertilizer, in addition to the small amount of phosphorus it contains. Of course, straw has additional value in that it adds vegetable matter to the soil.

Until the last few years straw had to be spread by hand and the task was somewhat laborious, but recently machines have been put on the market for spreading straw rapidly and easily. The practice is gaining in popularity where the spreaders have been introduced.

Leaves Are Valuable

Next spring we will be looking for all the fertilizer we can find, and if plans are made now we can easily have more than usual. In recent years when commercial fertilizers were selling for less than they do now few people would think of saving leaves. Now, however, things are different and Franklin Menges, farm adviser of the Department of Agriculture, has the following to say regarding this source of fertility:

Trolley used by Mr. Trimble for conveying utensils and milk between barns and springhouse, a distance of 400 feet

"The composition of the leaves of different species of trees varies. A hundred pounds of leaves as they fall from the trees at this time, partly dry, contain 60 per cent. water, 9 per cent. nitrogen, 2 per cent. phosphoric acid, 4 per cent potassium and about 2 per cent lime. A ton of leaves will contain 18 pounds nitrogen, 4 pounds phosphorus and 8 pounds potassium and about 40 pounds lime. The nitrogen, valuing it at 40 cents a pound, would be worth $7.20, and the potassium, at the same rate, would be worth $3.20. Leaving the value of the phosphorus, the lime and the organic matter out of consideration, a ton of leaves would be worth at the abnormal prices now prevailing, $10.40.

"In order to conserve the fertility contained in the leaves, as well as to make it available and prepare them to be applied next spring on the gardens, they should be composted, that is, piled up in piles 10 to 20 feet square and 4 to 5 feet deep and tightly compacted. Put down a layer of leaves and any other rubbish, such as corn, tomato, potato, cabbage and other stalks, free from disease, to a depth of 12 to 18 inches, compact well and cover the whole with caustic lime to a depth of two inches. Put down another layer of leaves to the same depth and cover with lime the same as before, and so on until the compost heap is 5 feet deep. Leave it until the leaves begin to break up and become fine, then fork it over and pile up to a depth of 4 feet. Continue this operation whenever necessary during the winter and in the spring the compost will be in splendid condition to be applied with the seed and plants as a fertilizer."

Destroying Fence Posts

Wood decays because of the growth in it of a plant called fungus, which lives on the wood tissue and causes rot. Wood will never decay if the fungus plant can be kept out of it.

Covering wood with paint will prevent the fungus from entering. The plant spreads by seed-like spores which fall on moist wood, develop, and grow into the wood. As the fungus needs moisture, wood that is dry will never decay. If the wood is poisoned the fungus plant cannot develop for it is deprived of its food.

According to Prof. J. A. Ferguson, of the forestry department of the Pennsylvania State College, painting wood with several coats of hot creosote will poison the outer layers of the wood and prevent the growth of fungous plant. The wood must be well seasoned and dry so that the creosote will soak into it.

The creosote can be made to sink deep into the wood if the wood is first boiled in the creosote and the mixture left to cool, as it is thus driven into the wood by atmospheric pressure. Fence posts of quickly rotting wood treated in this way can be made to last from fifteen to twenty years. This treatment will cost from six to eight cents a post.

Annnual Pensylvania Farmers' Week

The annual Farmers' Week at the Pennsylvania State College will be held this year on Wednesday, Thursday, Friday and Saturday—December 26, 27, 28 and 29. Although the period has been reduced to four days the program indicates that a large amount of practical information is in store for those who attend.

Lectures and demonstrations will be given in all phases of agriculture, including vegetable gardening and floriculture. A special home economics program has been arranged for the women who attend and also for the boys' and girls' club members. Lecture periods, each one hour in length, will begin each day at 8.30 A. M. and last until 5 P. M. Double periods will be used when necessary for practicums and demonstrations. Evening programs will be general, and largely social or recreational.

Educational exhibits will be staged by various departments of the school of agriculture. Complete programs and other information may be obtained by addressing M. S. McDowell, State College, Pa.

Meeting for Boys and Girls

For some years past it has been the custom of the New Jersey State Agricultural College to invite boys and girls to visit the College during Christmas vacation. A special program is provided for the young people, consisting of an inspection of the college buildings and grounds, including the college farm, and lectures by members of the college and experiment station staff. The meeting this year will be on Thursday and Friday, December 27 and 28. Programs can be obtained from the state leader of boys' and girls' club work, at the Agriculeural College, New Brunswick, N. J.

Be "U. S. Protected" For Winter Barnyard Tasks

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Worth While Poultry Suggestions

F. V. L. TURNER

Price regulation of poultry and its products can affect only those who have gambled with the stored product—so far there has been no attempt by Food Administration officials to destroy all profit—a *reasonable* return to speculators has been allowed.

The fresh egg still enjoys all of the price that demand creates and no regulation can affect it. Next spring's crop of eggs is the one thing that the producer must control against speculation. Co-operative handling and storage is the solution.

So-called one-eyed colds and all other colds can be effectually relieved by simple methods. Provide a 1 per cent. solution (1 teaspoonful to 100 teaspoonfuls of water) of any standard coal tar base disinfectant and germicide, into which solution dip the entire head of the affected bird, quickly removing from the dip. Follow this treatment every day and in addition give one dose of the following mixture: Powdered gentian root, 4 drams; powdered ginger, 4 drams; sulphate of iron, 2 drams, hyposulphite of sodium, 1 dram, and salicylate of sodium, 1 dram. Mix thoroughly (the druggist will do this) and give 4 grains to each fowl once a day. To easily administer the dose secure 100 No. 4 gelatine capsules (cost 15 cents per 100) and fill with the powdered mixture by pushing both ends of the capsule into the powder and then closing together. The quantity of powder given above should not cost over 30 cents for the entire lot. From five to ten doses will relieve a cold.

Roup has no place in the well regulated establishment—relieve the colds as quickly as they appear and there will be no roup.

Sneezing is the evidence of a cold, so is a rattle in the throat—the remedy given above will relieve either or both.

Feeding and Housing Geese in Winter

ESTHER MARIE BETTS.

For those who are expecting to carry a flock of geese through the winter, now is the time to provide shelter for them. While they do not require much protection, they must have some provided. A long, low, waterproof shed, arranged so that it can be cleaned easily is all that is necessary. So long as it is dry there is no danger of its being too cold. If they have a pond or stream of running water they will swim on that and keep their feet from freezing. Plenty of fresh air must be provided in the house and the floors should be covered with dry bedding. A damp place to sleep is apt to be fatal to young birds and will leave the old ones weak and unable to produce the greatest number of eggs in the spring. The house will need to be cleaned oftener than for hens. The fertilizer is splendid for trees and all kinds of fruit.

For birds which have lived almost entirely on grass and green stuff, a change to feed composed entirely of grain is not advisable. Geese will live largely on grass and roughage, even in winter. Clover chaff, alfalfa or dried lawn clippings, mixed with vegetable parings and a little grain make a splendid mash. We have found that a mash of hot water, mixed with one part bran or middlings, preferably middlings, with three parts clover chaff, or even more than that, for a morning feed with corn at night, makes a most satisfactory ration for the cold months. Alfalfa can be substituted for the clover. Geese must have plenty of water the same as in summer. In extremely cold weather it pays to warm both food and drink. The birds can remain out of doors except on the coldest days, but should always be put in at night. Even if they do not freeze their feet, it lowers their vitality to remain out at night. Corn fodder or ensilage can be fed to some extent, I imagine, though it may take them some time to get used to it. About the first of February it is well to increase the amount of grain fed until they have at least half by time for the laying season to begin. Do not make the mistake of feeding all grain, even when they are laying heavily. Clover chaff or ground alfalfa mixed with grain, makes a splendid feed at all times of the year. Though the geese may not like it at first, yet if it is mixed with the grain thoroughly and they are made to clean it up, they will soon become fond of it and will produce eggs at much lower cost than on grain alone.

Wheat, Poultry and Patriotism

JOHN B. ALDEN.

Until recent months wheat has always been our principal grain ration. We have for some months stopped feeding it altogether, not because of its high cost, but because of the appeal of patriotism—the needs of our allies. With a flock of over 1600 hens and pullets this means, of course, several hundred bushels of wheat a year saved to strengthen a righteous cause and help end the war.

The saving is made, we think, with little, if any, detriment to the egg product of our White Leghorns, because of our method of feeding, which is a little different from that of any other poultrymen we know.

Years ago, when our flock was smaller, we made large use of sprouted oats, carefully cultivated in first-class drawer equipment. As the flock increased the labor was found onerous. By observation we noted that hens, even when "greenness" was most attractive always "went for" the seed end. So in time we did away with the work of the "drawers" and have simply soaked the oats in galvanized pails for from two to four days, depending on heat and other conditions. Experience tells what is best as to the amount of water and the best temperature. In winter we keep the pails in the house furnace room; in the summer in the sunshine or in the shade. If the oats sprouts, very good; if it only swells and becomes more tender, good. We then mix it with dry cracked corn, half and half. The hens like it thoroughly and thrive—come with a good appetite every time.

Oats for some months has been the cheapest of grains for chicken feed. Chemically it is as good an all-around ration as wheat, and fed in this way we believe results are about equally good as with wheat. The proportions of corn or oats may doubtless be increased or diminished advantageously according to conditions.

Besides the grain ration we keep always before the chickens a rich mixture of dry mash with plenty of the best grade of beef scrap or fish scrap. For some time we have been using, in preference to anything else tried in that line, a high-grade fish preparation, which mixes with ground feeds most perfectly, and seems to produce the best results.

New Jersey.

This, the month of December, spells success or failure with the early hatch—those pullets that are not laying are failures.

Prepare for Early Hatching

Early hatching next spring is necessary if the desired increase in production is attained, warns Clarence Dubose in a recent statement from the Department of Agriculture. It is also necessary, during the winter, to save young hens and pullets, so they will be on hand for stock in the spring. The stock of the nation has been reduced considerably this fall by a widespread sale, for market, of young hens and pullets. Therefore it is necessary to conserve stock now, or else the shortage may interfere seriously with the production program. In view of the stock shortage, to kill a good hen now is to reduce the potential egg production next year anywhere from 5 to 12 dozen eggs.

Early hatching in the spring will increase the number and size of fowls and the number of eggs produced next year. It will result in bigger birds, and birds that will lay in the winter months.

The hatching season varies in different parts of the country, running through February, March, April and May, generally speaking, although in some parts of the Southwest may start in January. The season commences earliest in the Southern and Southwestern States, and latest in the extreme northern parts of the country. In the Middle West, where ten states in the grain belt produced half the poultry of the entire nation as shown by the last census, the hatching season has been during the late winter and early spring months.

Every poultry keeper is urged to start the hatching season earlier than usual next year, either by incubation or natural methods if the hens will sit earlier. The chickens first hatched in the spring are the ones that are largest in the summer, that mature first in the fall, and that lay eggs in the winter. Furthermore, they are the ones that will want to sit early the following spring which, in turn, will hatch earlier chickens—and so the cycle will continue. On the contrary chickens hatched late in the spring do not mature until so late in the fall that they will not become winter layers. They will not sit until late the next spring, and so another cycle of late maturing, late laying fowls is established.

Selecting Hens Increases Egg Yield

Some interesting demonstrations in the value of selecting poultry to secure increased egg yields and larger profits are being conducted in Pennsylvania by H. C. Knandel, in charge of poultry husbandry extension at the Pennsylvania State College. Tests made by Mr. Knandel show that egg yield is frequently doubled or tripled by judicious selection of birds.

Recent poultry selection demonstrations in Lawrence county have developed interesting results. In one case a two-week record kept by one farmer shows that 41 good hens laid 241 eggs as compared with four eggs laid by 41 poor hens; in another case a record of 19 days shows that 28 good hens laid 111 eggs as compared with 27 eggs laid by 47 poor hens.

In the latter case the college representative selected the hens September 22nd and no eggs were laid by the poor hens until September 28th. During a two-week period 19 good hens in one flock laid 152 eggs, while 13 poor hens in the same flock laid two eggs.

Practice poultry selection and increase your returns. The good winter layer has bright eyes, legs set well apart, pale beak and shanks in late fall and early winter, a strong, broad back, a deep and full abdomen, a deep rounded chest, and is vigorous and active.

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Successful Trapping Methods

CHARLES H. CHESLEY

The fox is, perhaps, the most difficult of the smaller fur bearers to lure into a trap. Reynard seems to have an inbred knowledge that warns him of danger and an intelligence rather above that of such animals as the skunk and muskrat. However, it is quite possible to capture a goodly number of foxes in sections where they abound, and the trapper should not overlook this sly animal. North of the Mason and Dixon line the red fox is the more common, while farther south the gray is the leading species. The former brings a good value this season, being quoted as high as $35 for the best northern pelts. We shall not expect to get any that are worth that price in the Central States, though, and probably not south of the Canadian boundary. Our common foxes should bring $15 at the lowest, however, if the pelts are anything near prime. The gray fox is not worth more than one-fifth as much.

We have had good success by making sets in spring holes. This is perhaps the best method to employ until cold weather comes on, then it will be necessary to make land sets. The spring set is made in a pool of shallow water, where the trap is set either close to the bank or a foot or so from it. In both cases the bait is placed six inches or more beyond the trap and partially covered with leaves or grass from the bottom of the pool. Where the trap is set a thin piece of turf is used for a covering and the idea is to give the impression that a small hummock or moss-covered stone happens to be in a convenient place for Reynard to place his feet when reaching for the bait. He hates to get his feet wet and the success of the set depends upon this characteristic of his. In making sets for the fox, everything must be left in a natural manner and the trap should never be handled with the bare hands. Wide-jawed traps are best and most trappers use the kind that have the springs under the jaws, rather than those that have them extending from either side. It is advisable to carry a short-handled hoe and a sharp-pointed iron pike to use about the sets.

A good land set for the fox may be made in a path, known as a blind set, or in a so-called "bed." The "blind set" is one without bait and should be made where the animals are likely to pass. Paths in pastures remote from farm houses are best suited to this method. A small piece of turf is removed and shaved down to a minimum of thickness. Under this a small hole is excavated to hold the trap, together with the chain, the trap is set and the turf placed back in position. If the work is done skillfully, so the passing animal will not note any disturbance of the sod, he is quite likely to place his foot in the trap. To make this more likely, a weed or bush is broken or bent down on either side, so the approaching animal, in leaping over the obstruction, will jump directly into the trap.

The "bed" method is employed by many trappers. In the first place, the sod and soil are removed from a circular space perhaps two feet in diameter and the soil carried away. This should be done carefully. First spread a cloth or paper on the ground, so every particle of the removed material may be taken away. Carry it to some distance and dump it where passing creatures will not be likely to see it. Fill the excavation with chaff from the hay loft and place bits of bait in the bed. Do not place the trap in position at once. Wait until the animals are coming to the bed regularly for the bait, then place two or more traps in position. A good time to do this is in the early morning while the dew is still on the ground. The drying of the dew or melting of the frost will help to destroy the human scent.

Both of these sets will take other animals. The skunk is frequently taken in the path sets and also on the beds. The same is also true of the raccoon and the opossum. The wild cat, where that creature is found, is also taken in the "bed" sets. Do not fasten traps set by these methods. When setting in water holes, a clod or drag may be used, but a better way is to have the traps equipped with grapples, some six inches long. These can be hidden more readily in the blind and bed sets, and unless the ground is entirely free from underbrush, no captive fox can get far without being tied up. The chain should be about three feet long. Old meat with a strong odor, the stronger the better, is the best bait for foxes. After snow comes on, one can still use the blind and bed sets to some extent and occasionally springs may be found that do not freeze readily. Such places may be used for water sets. Traps for setting in the snow may be whitened by immersing them in lime water. White tissue paper or thin white oiled paper may be used to cover the pan of the trap to keep it from freezing into the snow.

When making sets for the fox, approach the place selected from one direction and leave in another. Stand in the same tracks while doing the work. A lot of tracks about the set will make Reynard instantly suspicious. After the place for the trap has been prepared, go away to a considerable distance and get the trap ready to place in position, then approach as indicated above. Never expectorate or leave anything about the set that will retain the human scent. It is a case of matching wits with wisdom when trapping the fox.

A few words in regard to selling the furs may not go amiss. Many trappers do not get full value for their catch. The country is filled with buyers during the early winter and they are usually ready to take advantage of the ignorance of the man who has the fur to sell. Most buyers who travel about the country will offer about one-third what the pelt is worth. If the trapper happens to be posted on its value, he can usually get a fair price. Pelts are graded according to the locality, time of catching and size, hence any one who has pelts to sell should write for price lists and instructions as to grading. Even if the skins are sold to a local buyer, the price lists will be found useful, for they will give an idea of what furs are worth. Prices vary considerably from year to year. One season a certain kind may be in style and the next something entirely different. One of the most popular skins this year is the red fox. Last year it did not sell for such a high price. The mink is also higher this year than for some years past.

We have found it safe to ship furs direct to a reliable firm, relying upon them to give a fair grading. The buyers who advertise in reliable farm publications have, without exception, been honest in all our dealings with them.

A two-line report of a Kentucky county agent of the United States Department of Agriculture speaks volumes. This is his succint account of his work:

"Had a meting at the courthouse. I talked on whipping Germany with three B's—bread, bacon, and beans.

A Good Way to Break Boulders

FRANK A. HUNTINGTON.

I want to describe how I recently broke up a boulder that was about 11½ feet thick, 15 feet long and 10 feet wide. It was of soft stone and imbedded in the ground 10 feet deep, so that only about 1½ feet of the stone appeared above the surface.

Some blasters would have tried mudcapping this boulder, but they would have failed to break it that way because soft stone doesn't break well under a mudcap charge, and besides, it is practically impossible to break up a stone imbedded in the ground that way with a mudcap charge.

My method was as follows: I drove a long-pointed steel bar full length into the ground alongside of the stone. Two of these holes were made, one on each side. I then placed four sticks of dynamite in each hole, an electric blasting cap having been inserted in the top cartridge in each hole. The two charges were then connected up with some fine copper wire and a blasting machine was used to fire the charge. These shots made two pockets well down under the edge of the stone. In these two pockets I then placed two charges of 36 pounds of dynamite; that is, 18 pounds in each hole. These charges were also fired with a blasting machine, as I wanted them to go off at exactly the same instant. Of course, these charges were tightly tamped in the bore holes so that practically the full effect of the explosive was exerted against the rock. The stone being between them, it got the kick from both shots at the same instant.

Before firing the main charges, I put two small charges consisting of a pound of dynamite in mudcaps on top of the stone. These shots lifted the stone to the top of the ground, just clearing the hole and breaking up into a dozen or more pieces. The three largest pieces I was unable to handle and broke them up by placing a comparatively heavy charge under them and a light charge on top of them under a mudcap. The entire cost of the work was $10.

New York.

Highest Yielding Ears Wanted

The Delaware Corn Growers' Association, which holds its Eleventh Annual State Corn Show in Middletown, Del., January 2-4, 1918, will have one class open to the world. For the ten ears of corn shelling the most grain by weight, is offered five dollars in gold; 2nd, three dollars; 3rd, two dollars. A moisture test will be made of each sample to determine the exact dry weight. All entries must be received by A. E. Grantham, secretary, Middletown, Del., on or before January 2nd. No entry fee is charged non-residents.

It is estimated that the total alfalfa crop for Pennsylvania during the past season was 133,840 tons, an average of 2.8 tons being cut to an acre.

Records show that there are 28,500 silos in use on farms of Pennsylvania, an increase of about 5500 over last year.

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Dark	$10.00-8.00	6.00	$4.50
Brown	$7.50-5.50	4.50	3.25

RACCOON

No. 1 Large	No. 1 Med.	No. 1 Small
$4.75-4.25	$3.00	$2.00

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$1.35	$1.10	.65	.40

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Then we have recently got out another we call our Fashion book, wholly devoted to fashion plates of muffs, neckwear and other fine fur garments, with prices; also fur garments remodeled and repaired.

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Orchard and Garden Ideas Now Useful

Protecting Trees from Mice

SHELDON W. FUNK.

Hundreds of young trees are lost each winter because of mice injury. This loss is largely due to the carelessness of the growers, and could mostly be prevented. Because of the very heavy growth of grass and weeds during this last summer I think the danger of loss from this cause will be greater than usual this winter. In many orchards the grass and leaves are allowed to remain around the trees during the entire winter with the result that the mice build their nests in this material; then when the heavy snows come and food becomes scarce they feed upon the bark of the young trees. The girdling of a number of trees soon means quite a loss in both time and money and at the same time spoils the appearance of the orchard.

Wire protectors are frequently used on the young trees, and if properly applied usually prevent any damage. This year however, wire is not only extremely expensive, but also very scarce, and some other method must be used.

My practice has always been to clean the grass and trash away from the trees in the fall of the year. We usually wait until the grass has been killed by the frosts, so that it is not difficult to remove, then we clean everything away from around the trees for a distance of from two to three feet. I have never used a wire protector on my trees and have never had a tree injured by mice. Where there is a very heavy sod close to the trunk of the trees this practice is not always entirely successful the first year, because the soil is so filled with grass roots that the mice work under the soil and girdle the roots. After the first year, however, I think you will have no further trouble. Next spring during March or April go over the trees again and if any have been damaged they can be saved very easily by bridge grafting.

Cleaning away the trees in this manner does not require much work, but it is a very important orchard operation and should never be neglected.

Pennsylvania.

Pruning Days are Here

A. J. BRADLEY.

There are mild winter days when the fruit grower becomes impatient with the slow progress of the season and longs for the days when the real growing time begins. On these days I find it profitable to prune the peach and apple trees and such of the smaller fruits as need it.

Pruning is in order any time while the trees are dormant, and it is a profitable ocupation except when it is performed at the expense of health. If it means one's exposure to cold and wet, then it is better to postpone pruning until nearer spring. I have found to my sorrow that exposure to bad weather while pruning several times brought on illness that cost much valuable time later when spring opened up.

Most of the farmers in this section look upon pruning as a useless waste of time, the latter commodity being far more valuable during the winter months when spent about the country hotels—of which there is one about every mile or so—flying board shoots or raffles. Later on country sales will afford places to idle more time.

When I began poultry work, there was an orchard of about two acres of apple trees and about 50 peach trees on the place. That first winter I cut out so much wood from the apple trees that the natives looked upon me as being crazy. They would pull up their teams alongside the road and facetiously ask me if I thought the orchard was a wood lot. It certainly was, and I got the greatest part of my winter wood from it.

I pruned severely—too severely, I realized later—but it was the re-making of that orchard, that and spraying, and I have had the satisfaction since of selling fruit at one dollar a bushel while the scoffing neighbors had to grind theirs into cider.

In pruning each man appears to be a law unto himself, and I have seldom found any two men who agreed as to the amount of pruning necessary. I prefer to prune closely, as the less wood there is on the tree the less danger from overbearing and injury, while considerable labor is saved in thinning the fruit, a big item in these days of scarce farm help.

Pennsylvania.

Tree Vaccination Won't Work

Vaccinating materials and other cure-alls to protect fruit trees from insects and diseases have proved ineffective in the hands of specialists of the Ohio Experiment Station. It would be as logical, they say, to expect some single nostrum to ward off all human ailments as to think of controlling all insect and disease pests of trees by a single treatment.

Treevax, a reddish powder supposed to be distributed throughout a tree by sap flow from a vaccination in the trunk or branches, failed entirely in checking San Jose scale in apple trees. Blight and plant lice lived on undisturbed by such treatment. Scale insects killed many branches just as if no Treevax had been used.

Another "tree fluid," advertised to destroy insects and diseases, had no effect against scale insects when sprayed on infected apple trees. Most of the trees died because of insect attacks.

Lime-sulphur wash and soluble oils have controlled scale insects when properly applied, and powdered sulphur compounds have also been promising in experimental tests. This spray may be applied now or in the spring before the leaves appear.

Red Cedars Spread Apple Rust

Red cedar, or juniper, trees favor the spread of rust to apple and crab apple trees. Jelly-like masses an inch or more in diameter, with firmer woody centers, are frequent on red cedar trees in April to June. Inside these jelly masses are spores of the rust fungus. Cedar trees are essential hosts to the disease; and when these weed trees are removed, the breeding places of the disease are destroyed.

Red cedar posts are worth 30 to 40 cents apiece, and large anchor posts are valued at $1.50 to $2. The larger trees may vary in value from $3 to $10 or even more when cut into posts. Such a use of these evergreens is recommended by the botanist of the Ohio Experiment Station as a control measure against apple disease.

Estimates show that about 75 per cent. of a normal grape crop was grown in Pennsylvania during 1917.

The average yield of honey per colony in Pennsylvania during 1917 was 33 pounds as compared with 54 pounds in 1916.

Scheduled Meetings

Poultry Show, Madison Square Garden, New York City, Dec. 28-Jan. 2.
New York State Breeders' Association, Syracuse, January 8-10.
New York State Fruit Growers' Association, Rochester, January 9-11.
New Jersey Agricultural Week at Trenton, January 22-25.
Maryland Agricultural Conferences, Baltimore, December 18-21.

Grange Interests

MRS. JENNIE M. RODGERS
Ceres Penna. State Grange

The U. S. Food Administration recently sent to the farm papers an idea which it seems to me might profitably be adopted in some Granges. It suggests that a conservation booth be made a leading feature at the numerous bazaars being planned about this time. Those of us who canned, preserved or pickled more than our own family needs, could contribute a little of our surplus which would meet with ready sale to those not so well provided, or may be just wanting some of the kind of which you have too much We should keep in mind in this connection that attractiveness of the container and the manner in which it is exposed for sale has a great deal to do in finding a customer. There are many farm products which could be added to a booth of this character and a live committee could develop it into something worth while.

Surely the war spirit was prevalent at a recent meeting of our Delaware and Chester County (Pa.) Pomona. It was during the week of the Y. M. C. A. campaign, and we gave them one hundred dollars, then two members each donated a small pig, which were auctioned off for the benefit of the Red Cross and netted forty-one dollars; also two of the resolutions adopted were influenced by present day conditions, one of them abolishing the serving of cake at our meetings while the war lasts, as we use about a hundred cakes at a meeting this is quite a saving; and the other favored the paroling of drafted farm labor for work upon the farms and the exemption of farm labor and farmers on the ground that food was necessary to win the war.

I often hear of Granges having Fourth of July, Halloween, Thanksgiving and other special celebrations, but have yet to hear of one having a special Christmas party for the children. If you know of such a celebration won't you tell me about it so more of us can try it next year? We have a special children's night each year in July, but it certainly does not mean as much to them as a Grange Santa Claus would. Maybe we in Pennsylvania have been too busy each year with election of officers at our last meeting in December to think of the children, but now that work has been transferred to November and we can arrange a Christmas meeting.

About the time you receive this issue of The Practical Farmer the state Granges of Pennsylvania, Maryland, Ohio, Delaware and New Jersey will be either in session or have just finished their annual meetings. Agricultural problems growing out of war conditions are many this year and a great deal of interest will be taken in how the organized farmers in these five states intend to meet them. I hope in our next issue we will have condensed reports from these meetings.

The League to Enforce Peace, of which Ex-President Taft is president, and which has the approval of most of our big men and publications, has for free distribution a debater's manual which should prove valuable to lecturers who want to be well posted on this movement. The League does not stand for peace at any price, but such as will come after Secretary of War Baker made his remark, "Our combined armies from now on will represent a league to enforce peace with justice." Address the League secretary at 70 Fifth Avenue, New York.

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Answer the farmers' big questions. How can I grow crops with less expense? How can I save in planting potatoes? How make high priced seed go farthest? The
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The following are the little prices of our guaranteed tires:

Sizes	Price	Sizes	Price
30x3	$6.50	36x4	$11.00
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32x3½	8.50	35x4½	12.00
33x4	10.50	36x4½	12.00
34x4	10.50	37x4½	12.00

We will retread your old tires by our improved process and guarantee them at the following prices:

Sizes	Price	Sizes	Price
30x3	$5.50	36x4	$8.50
30x3½	6.00	34x4½	8.50
32x3½	7.00	35x4½	9.00
33x4	8.50	36x4½	9.00
34x4	8.50	37x4½	10.00

Add $1.00 to the above for Non-Skid Tire
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837 No. Broad St., Philadelphia, Pa
Send for descriptive booklet and price list.

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Keeping Cow Production Records

OUR EXPERIENCE POOL

We pay $2.00 for the best, $1.00 for the next best and 50 cents for each other article published in our Experience Pool. All our readers are invited to contribute their experience on the topic under discussion and suggest subjects for future discussion. Contributions must reach us 15 days before date of issue.

TOPIC No. 1234, JAN. 1.—Looking ahead to the rush of spring work, what class of harrow do you think fits the ground best and why? Are you considering the purchase of larger harrows, or do you hook two together and drive more than two horses, or use a tractor to pull several in order to overcome the labor shortage? Tell us your experience in 250 words.

TOPIC No. 1235, JAN. 15.—Have you kept sheep for the first time this year, and with what success? If you are an old hand at this business, what suggestions would you offer to the beginner. Please do not write more than 250 words.

TOPIC No. 1236, FEB. 1.—What provision have you made for supplying water to your stock, especially dairy cows, during the winter? Describe your tank or reservoir, power you use to pump water, and any special feature found in your system. How much did it cost? Tell us in not more than 250 words.

E. B., Greenville, Pa.—I belong to a cow testing association and think I have derived a good deal of benefit therefrom. In our association there are at present twenty-eight members and 450 cows. The tester in charge tests these herds in 26 days of each month. This is accomplished by the tester remaining over night with each member, except where there are four small herds which are tested in two days. Samples from one and then from another nearby herd are taken at the same milking period.

We pay our tester $55 per month with board and horse feed. The tester should be a person who has taken a course of study in dairying and he should have a thorough knowledge of animal husbandry and the chemistry of the various grains and roughages. He should know the effects that various feeds produce, and he should know how to mix feeds so they will make a balanced ration. Such a man can give the dairyman valuable pointers on feeding the gentle kine for best results. In cow testing associations the element of guessing on a cow's worth is eliminated. Many a man has sold a cow which afterwards, when tested, proved to be the best cow he had. And many dairymen are keeping cows which do not produce enough butter-fat to pay for the feed they eat.

Those who have purchased Babcock testers and tried to do their own testing find it a tedious task, and owing to pressure of work the testing and records of the herd are neglected and finally given up. The farmer who does not know to a certainty whether or not each cow is making a profit and how much, is doing a loose business.

Just before I joined the cow testing association I had a cow which I offered for sale because she did not give much milk, although her milk looked good. When tested, however, it was found she was one of the best cows I had, so she is not for sale now.

S. M. T., Upland, Pa.—There is no cow testing association in our county, although some effort has been made to establish one. To my mind a cow testing association is a big help to the dairyman; one should be in every community. Especially is it so at this time, for now every iota of efficiency should be used to get the fullest returns from the high costing feed and labor required to carry on the dairy farms. We keep a record of each cow's milk by weighing every ten days. We have a sheet with the number of the cows running down the left-hand edge and the dates running across the top, so that one sheet of paper does for several weeks. On another sheet each week or ten days we note the ration being fed, its cost, roughage consumed for the previous period, etc. At the end of the year these papers are posted to our account book, and the individual milk records added and permanently filed for future reference.

We also keep a small book with service records, calving records, etc., also sickness in the herd and time of each cow's dry period. Of course, this work would all be taken care of by the tester in an association if we belonged to one. The only objection I see to an association is the annual cost, but this is comparatively small when you realize the gross returns that come to you in showing where the leaks in the business are.

Every dairyman should keep accurate records of his work, as that is the only way improvements can be made and mistakes corrected. Any dairyman can by such mehtods improve his herd by raising only the calves from the best individuals. By means of the scales and Babcock test we have located several "boarders" in our herd during the past three years; this has resulted in enabling us to increase the average yield per cow this year.

J. E. F., Wellsboro, Pa.—I have never belonged to a cow testing association, but believe every dairyman should. For a number of years I have weighed our milk from each cow. I have never tested it, as we think it would not pay, as we have been selling milk to a condensery. They paid a certain price for milk that was to test 3.5 per cent. butter fat, and no more even if it tested 5 per cent., until about seven months ago, when the Dairymen's League forced a change in price of milk and test also. Now the condensery is paying a certain price for milk testing 3.7 per cent. fat, and 4 cents for every tenth over, so now I think it behooves us to get busy and test, as well as weigh, the milk from each cow. This will eliminate the robber cow and improve the herd.

Cow Testing Demonstrates its Value

Accurate records of the amount of milk and butterfat produced and the feed eaten by each cow in the herd are necessary in order to determine which are the profitable and which the unprofitable cows on the farm. While a good judge can usually tell a good cow from a poor one, yet there are frequent cases where cows may differ by as much as 2000 ot 3000 pounds in their annual milk yield and it may be impossible to determine from general appearances which is the better producer.

This fact was recently demonstrated in an interesting manner by a judging contest held under the direction of a representative from State College at a farmers' picnic at East Greenville, Montgomery Co., Pa. The cow testing association had just completed a year's work and six association cows varying in yearly milk yield from 6000 pounds to 14,000 pounds were used as a judging class. A prize of $10 was offered to the man who could place the six cows in the correct order of their production.

Fifty persons entered the contest. The $10 prize, however, still remains to be awarded, as not one of the fifty contestants succeeded in placing the cows in the correct order of their milk production. Only one man placed the first three cows in correct order and only five succeeded to the extent of getting the first two cows in correct order. Thirty-seven out of the fifty did not place the best cow first, and more than half of them did not place the poorest cow last.

This contest made it fully apparent to those present that an actual record of each cow's production, such as is furnished by a cow testing association at low cost, furnishes the only guide as to which cows in the herd are the profitable ones to retain for milk and breeding purposes and which are the unprofitable ones and should be sent to the butcher's block.

Persistent milkers—the kind that milk well for a whole year, not the type that yield abundantly at first and then soon drop down in production—are the winners in the long run, according to dairymen at the Ohio Experiment Station. Some cows yield considerably above the average at the first lactation periods, but within two or three months yield only a third and by the end of the period only a fourth of their production.

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There's a Lambertville Brand for Every Purpose and Every Purse
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Snag-Proof—All rubber and duck. Seven thicknesses of rubber *ground* into the heavy duck.
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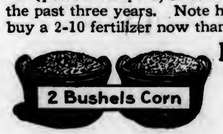
Lamco—Pure gum reinforced with seven stout ribs to prevent cracking or breaking.
L Brand—Duck vamp, long service footwear at moderate price.
White—Pure white rubber in Snag-Proof quality—Steam cured in vacuum, designed for extreme severe service.
You should find Lambertville Footwear for sale at the best store in your locality. Not all stores sell the Lambertville line because we limit the sale to merchants who value a satisfied customer above a quick profit. If you do not find a dealer near you, write us direct and we will see that you are supplied.
LAMBERTVILLE RUBBER CO., Lambertville, N. J.

Fertilizers Pay Better Than Ever
TODAY a bushel of corn or wheat buys more fertilizer (potash excepted, of course) than at any time during the past three years. Note how much cheaper you can buy a 2-10 fertilizer now than before the war.


In 1914 would buy

Today will buy

In terms of farm products, fertilizers cost less today than in 1914.
Fertilizers paid you *then*—they will pay you better *now*.
Fertilizers are today more profitable and more necessary to efficient production than before the war. Boost crop production, grow more per acre and increase your profits by using fertilizer.
Help both the railroads and yourself by ordering Spring Fertilizers NOW.
Send for literature to Department 16
Soil Improvement Committee
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Postal Telegraph Bldg., Chicago The Munsey Bldg., Baltimore

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This is the cheapest saw made. Only $13.15 saw frame to which a ripping table can be added. Guaranteed 1 year, money refunded and all charges paid if not satisfactory. Write for catalog.
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FOR OUR BOYS & GIRLS

THE PRACTICAL FARMER P·I·O CLUB

THE MAGIC WORD:
OR LADDIE AND POLLY IN THE COUNTRY

Written especially for this paper by Uncle George, founder of the P. I. O. Club in The Practical Farmer

CHAPTER II.

No sooner had the door opened than out flew Mrs. Cat and in came a very dignified person wearing a blue uniform.

"You will eat your breakfast and then see the judge," said the officer.

"But where is my sister?" asked the boy, Laddie.

"Your sister will be at breakfast with you and you are mighty lucky, too. Not many of your kind come from the bad part of the city and get off as easy as you two are going to get off. I hear you are going to the country—good luck to you, you little imp." The officer's voice sounded very far away to Laddie, but then, he had been treated far better than he had expected. Oh! the dreadful stories that had been told him about the police and the station houses; surely they must be all wrong.

By the time the center of the room was reached, after the officer and Laddie had left the stairway, who should come out of one of the doors but Polly with the police matron. Laddie ran to his sister with a cry. He had never been so glad to see her in all his life, it seemed to him.

As he held her in his arms he whispered in her ear:

"It works!"

Polly turned her head and asked:

"What works?"

"The magic word works—I tried it." Laddie gave her another kiss and she whispered: "Goodie."

But the children were not given much time together. They were taken into the court room, which was filled with people. It reminded Laddie of school.

Then it seemed that the boy and girl both thought of something at the same time. They had not had their breakfast. Oh, well! That was nothing very new.

Laddie and Polly sat down beside the matron and both looked around the room. They saw the policeman who had brought them to the station house the night before. He smiled at them.

"I thought policemen were very unkind, but this one and all the rest have been good to us," thought the boy.

There was silence in the court room until the case of a boy who sat next to Laddie was called. He took the chair, which is always called the witness chair, and the judge asked him:

"What is your name?"

"Timmy McQueen," answered the boy.

"And what are you here for? asked the judge once more.

"I was drowned," replied Timmy without a smile.

"So you were drowned?" asked the judge. "When were you drowned?"

"Tree days ago I wuz drowned."

"SILENCE!" shouted a court officer, for by this time every one was laughing. Even little Polly laughed. Then she looked at Laddie and became sober once more.

"Tell us about it," commanded the judge who was trying hard to keep from laughing.

"Well, yer see, Jedge, it was this way; I was skatin' in de park when all uv a sudden like me feet went down and I was drownded, see?"

"Yes, Timmy," began the judge, "I see, but tell us what happened after that."

"Well, de nex ting I knows, I wuz in the horsepital wid a copper lookin' at me." Timmy looked at the judge.

Every one laughed again at this, except the judge, and no one knows how a judge laughs when he does not want any one to see him, but this particular judge called one of the court officers and whispered in his ear. Timmy McQueen stood up and was led from the court room.

The matron arose and went up on the platform where the judge was sitting. She whispered in his ear and then spoke to one of the court attendants, who said: "Next case, Laddie and Polly."

The matron was eager to get the children on the stand and she helped them up to the chair, Laddie standing beside Polly."

"I hear some very good things about you, Laddie," said the judge. "I think you are very fortunate in that we have with us a farmer and his wife who have been here for three or four days. They wish to adopt a boy and girl about your ages, and I would like to ask if you would be willing to go with them. We try, in this court, to do what is best for all and I want you to go to this farm of your own free will, for you live in a free country—glorious America, and our children are the hope of our nation. What do you say, Laddie?"

"Yes, I would like to go," replied the boy, earnestly.

"And how about you, Polly?" asked the judge.

"I will go with Laddie, please sir."

Make out the papers and I will sign them. Laddie and Polly, this is Mr. and Mrs. Robinson. You will be known as Laddie and Polly Robinson, and God bless you. Remember to write to the matron and she will tell me how you are getting along.

The judge beckoned to the police matron and she went up to the bench. The old gray-haired judge whispered something into her ear and then he disappeared into his room. Soon Polly and the matron followed him.

"I wonder what they are going to do to her?" thought Laddie in alarm.

Little did he know the surprise that awaited Polly!

(To be continued.)

Dear Everybody

The very first thing I do this fine morning is to give you all a big hug and a bigger kiss (\$%@" —7&) (!*"****) and wish you a Merry Christmas and a Happy New Year. A new year full of our club activities. One member wrote that things were getting too slow and then she wrote again saying that things were humming very fast.

No hurry! We have plenty of time. I am glad so many of you sent me post cards to send to other members. I want to ask you another thing. If this idea does not appeal to you and you want to do something really, truly great and good, could you not send a letter, post card, a box of apples or something nice for children to the little people in Philadelphia hospitals for children?

I know you will.

Just think how grand it will be for our dear healthy country children to send some things of remembrance to those who are cooped up on the greatest day of the year.

Here is a secret: The children in the cities will have the worst Christmas they have ever had. Some of them have no coal. Food is high. Amid it all would it not be a nice idea for YOU to send something to the city children? All I ask is that you send a letter, telling about yourself, or a post card or something children cannot buy in the city (do not send CANDY). Address your mail:

P. I. O. CHRISTMAS FUND,
Care Uncle George, Practical Farmer,
Box 1321, Philadelphia, Pa.

Those children will be so happy and they will never know what P. I. O. means unless they join our club, but all the time we will be—you know—that's our secret.

Once upon a time a little boy was run over by a trolley car and I put a note like this in another paper like ours and he received seventy-five pieces of mail matter. How many are you going to send me for the children of Philadelphia? I can just hear those people in the hospital saying: "Wasn't it sweet of the dear children in the country to remember the little folks in the hospitals?"

I will see that the packages are delivered.

Do not say that you have nothing to give. Here is a P. I. O. Club check on our bank. If you have nothing else to send, send a check, and if you do not want to cut it out of The Practical Farmer, copy it on a piece of paper:

P. I. O. Bank of The Practical Farmer

*No.*_____

Town _____, *Christmas, 1917*

*Pay to the order of*_____

____ *Kisses,* ____ *Hugs.* ____ *K.* ____ *H.*

Countersigned; Uncle George. _____

Don't forget the old people, and I suggest that those of you who have not sent in your pledge, copy the check just the same and send your pledge after Christmas, only leave off the "P. I. O. Bank of The Practical Farmer" and "Countersigned by Uncle George."

I will tell you next time what I forgot to tell you this time, and I shall think of every one of you at NINE o'clock the night before Christmas and at NOON on Christmas day, and on that day I will send you a KISS. Look for it!

May we find peace—that GREAT PEACE—by Christmas, 1918, and may you, and *you*, and YOU say "I HAVE DONE MY PART. I have P. I. O."

Your loving friend,

Uncle George

ANSWERS TO PUZZLES DEC. 1ST.

1. Dint, pint, lint, mint, tint. 2. Warrant. 3. Corn.

QUESTIONS for DEC. 15TH.

1. What is the insignia of the cavalry?
2. Fill in:

A hop toad sat
On a hard-wood *****
A tub upset and
Gave him a ******.

3. Can you see the cat? Yes, I can see the cat. What kind of ICE does a cat like? Tell me in FOUR letters.

HONOR ROLL

James Harold Kirwan, N. Y.; Mary M. Doud, Md.; Dorothy Odell, —; Dorothy Kline, Pa.; Josie Emegene Willis, N. Y.; Hugh McMurray, Tenn.; Jos. Boyer, Md.; Elizabeth D. Tengel, Pa.

HONORABLE MENTION.

Susie Sloan, Va.; Josephine Suikert, —; Margaret Crowell, N. Y.; Hazel Trent, Tenn.; Marguerite Hemsworth and Amy Small, N. J.; Emma Saul, N. J.; Emma A. Riley, N. J.; Fevol and Esther Riffe, Va.; Pearl E. Long, Va.; Lillie B. Hendrickson, N. C.; Marie Jordan, N. Y.

P. I. O. CLUB NEWS

CORINNE MOYLER, VA., writes such funny N's I have to read them in the looking-glass, but I like them just the same.

CHARLIE MILLS has written all the way from North Carolina to tell us that he wants to be a good boy and learn to preach. Ten years from now let us hope we will be going to hear Charlie, who will be a second Billy Sunday.

MARY C. EWAN, N. J., stays up very late, it seems to me. That's because she wanted to write to Uncle George, so she is forgiven.

PLEDGE. 5

Dear Uncle George:

I promise to P. I. O. if it does not interfere with my conscience or my duty to my parents and friends. Please tell me the key to the secret of P. I. O., which I will not reveal except to brother and sister members of the P. I. O. Club.

(Name*).....

(Address) P. O.....R. F. D.....

Age..... State.....

*Write or print your name plainly and don't forget to dot your I's and cross your T's. Address all letters to UNCLE GEORGE, care Practical Farmer, Box 1321, Phila., Pa

The Women's Exchange

This is the farm women's *own* department—*for* them and *by* them. It is devoted to the discussion of topics of everyday interest to the women of the farm family. The Practical Farmer invites—and expects—you not only to write your experiences on the topics under discussion but also to propose topics for future discussions. The best letter published herein each issue will be awarded a prize of one dollar, and for each other letter published we will pay fifty cents. Address

WOMEN'S DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA.

JANUARY 1.—In what ways can we improve The Practical Farmer for 1918? What features in it do you and your "men folks" like best and which ones don't you like? Give us your honest opinion in not more than 250 words, and while we cannot promise to do all you suggest we will seriously consider all ideas.

JANUARY 15.—How do you satisfy the desire for music on the farm? What class of music do you prefer?

FEBRUARY 1.—What annual flowers have you found give the most satisfaction in the home garden? What is the secret of having lots of blooms all the season? Have you been successful in selling cut flowers? What kind sells best, where do you sell them and how much do you charge? Do not write more than 250 words.

Get your contribution in early. If it does not reach us at least 15 days before the date of issue, it will be too late.

Christmas Candies, Cakes and Pies

Miss E. M. G., Hershey, Pa.—Here are the receipts I always obtain the best results from. This is my favorite candy receipt:

PINOCHE.—2 cupfuls brown sugar, 4 tablespoonfuls butter, ½ cupful milk, 15 drops vanilla. Boil sugar, milk and butter until it forms a soft ball in water; remove from fire, add vanilla and nuts (any kind) and heat until creamy. Pour in buttered pans and cut in squares.

The following is a cake which substitutes for fruit cake, which is very expensive now: Take 2 cupfuls sugar, 1 cupful buttermilk, 4 cupfuls flour, 1 teaspoonful each of nutmeg, cloves, cinnamon and allspice, 2 cupfuls raisins chopped fine, 1 cupful butter, 1 cupful cold coffee, 2 level teaspoonfuls soda and 1 cupful nuts chopped fine. Mix all together; add nuts and raisins last.

This is what we intend to have for a pie for something different this year:

PEACH TART.—Line a deep pie tin with a good pastry, and place a strip about the rim of the pan. Half fill with preserved peaches; then pour over a custard made of 2 eggs, ½ cupful of sugar, a large cupful of milk and a teaspoonful of corn starch, brought to a boil and cooked until slightly thickened; bake until done. Then cover with a meringue made from the whites of the eggs; brown slightly.

Mrs. J. A. M., Huntington, W. Va.—The children always expect candies on Christmas, and we cater to them then, and this year I have an entirely new confection. I used the little yellow pear tomatoes, scalded and peeled as usual, then cut in half, the seeds removed and fruit allowed to drain. These were placed, piece by piece, upon enamel plates, sprinkled with lemon juice, a slice of lemon laid on top, the whole heavily sugared and heated in a slow oven with the door open, for about 40 minutes. I keep in a cool room over night, turn and treat the other side next day. Even another sugaring might be given to make very heavy and rich, but I only treated mine twice. These take not half the sugar for regular candies and children (young and old) love them.

Canned cherries, pitted plums and melon rind preserves candy splendidly, although not so finely flavored as the raw fruits.

Distribution? First, a large box, enough to pass around, in the "home-grown dinner" to the lad who is wearing the fouled anchors; then parceled out to those nearer home, although these have the merit of carrying safely wherever Uncle Sam's carriers go. I save suitable boxes all year, line with paraffine paper, pack in thin layers with paper between; pack sparingly, as these are very rich and go farther than plain candies.

Miss M. M., Fairview, Pa.—To make sprengerlie, these festal season little cakes, beat 4 eggs until light, add slowly 1 pound of soft sugar and beat one hour; add 1 pound of flour sifted with as much salts of hartshorn as will lie on the point of a table knife; or use two teaspoonfuls of baking powder. Knead thoroughly and chill for two or three hours. Roll to a quarter of an inch in thickness, press a wooden sprengerlie mold down hard to imprint all the different designs, each one separate in its little square. There usually are a dozen different designs in a mold. Cut out these small squares with a knife and set aside on a board, slightly floured, to remain over night; in the morning transfer to shallow baking tins which have been liberally sprinkled with anise seed and bake in a very slow oven until light brown.

Sprengerlie are dear to the hearts of the children and we always make them. They are nice to pass around to visitors and I know a couple of big boys who were tickled half to death when they received a sack of sprengerlie from home while they were at college. I heard of an old lady who put quite a large sack of them into the box that was packed at church for the orphans at the Home for the Friendless.

Mrs. L. B. M., Westover, Md.—We find the following receipts good for holiday use:

CREAM COOKIES.—2 cupfuls sugar, 1 egg, 1 cupful sour cream, ½ teaspoonful soda dissolved in the cream. Flavor with vanilla. Flour enough to roll out.

COCOANUT JUMBLES.—1 cupful sugar, 1 egg, ½ cupful shortening, 1 cupful milk, 1 teaspoonful vanilla, ½ cupful grated cocoanut, a pinch of salt and 2 teaspoonfuls baking powder sifted with 2 cupfuls flour. Roll out ¼ inch thick and bake in a moderate oven.

ECONOMY CAKE.—Put into the mixing bowl 1 cupful flour, ¾ cupful sugar, a pinch of salt, 1 level teaspoonful baking powder, mix well dry. Melt in measuring cup butter the size of a walnut, break into this 1 egg without beating and fill cup with milk. Flavor to taste. Bake in hot oven.

A good substitute for candy is made by grinding dates, figs or raisins in the food chopper and to 2 cupfuls of the ground fruit add ½ cupful ground nut meats. Make any desired shape and dip in melted sweet chocolate. Place on waxed paper to harden.

PEANUT COFFEE CREAMS.—2 cupfuls of granulated sugar, ½ cupful strong coffee; boil until it spins a thread, flavor with vanilla, add 1 cupful ground peanuts, beat until creamy and pour on buttered plates. When cool cut in squares.

CRYSTALIZED POP CORN.—Remove all hard or scorched grains from 3 quarts of pop corn. Boil 1 cupful of sugar and ¼ cupful of water until it threads. Pour slowly over corn, stirring corn with forks. If more than one color is wanted add coloring desired to syrup before pouring over the corn.

COCOANUT CREAM CANDY.—1½ pounds of granulated sugar, 1 cocoanut grated (or ground fine in food chopper). Pour milk of the cocoanut over the sugar, heat slowly until sugar is melted, then boil 5 minutes. Add cocoanut and boil 10 minutes longer; stir constantly to keep from burning. Pour on buttered plates and when cool cut in squares.

Mrs. E. L. H., Elkton, Md.—Our pies for Christmas are the old stand-bys—pumpkin and mince—and, of course, every family has their own receipt for each, but as to cakes we always have several varieties, not counting cookies and crullers; but our real Christmas cake is Lady Baltimore, for we only have it during the holidays, as it is a little too costly for ordinary occasions. To make, cream two-thirds cupful of butter with 2 cupfuls white sugar (granulated will do); after a thorough beating add ½ cupful of rich sour milk containing a teaspoonful of soda; as you mix in the milk add the sifted flour, a few tablespoonfuls at a time; 3 cupfuls of flour should be sufficient, but more may be needed. Lastly, cut in the stiffly beaten whites of 4 eggs. Flavor with rose, almond or orange. Bake in layers about 2 inches deep. For filling, chop or grind 1 cupful raisins, ½ cupful citron, 1 cupful cocoanut, ½ pound of almonds, 1 tablespoonful candied ginger. Make a plain white icing; into a portion of it mix the fruit; put this between the layers, using the rest of icing for top and sides. This cake is delicious. Sometimes I do not have all the fruits called for; then I use what I have and it is good just the same.

Store candy will be costly this Christmas, and having always made some home-made candy, expect to make more than usual this year. Fudge is our favorite, made from 2 cupfuls sugar, 1 cupful milk, a piece of butter the size of a walnut, and ¼ cake of chocolate. Boil until it will hold together in a soft mass, not hard or brittle; beat well before pouring into buttered pans. Every one who eats this declares it is fine. Sometimes I put nuts in it for variety, and I expect to make pinoche, too, this year, which is almost the same, except you use brown sugar and omit the chocolate. You also use nuts in this candy and it is most delicious with puffed rice mixed through it and made into little balls. I made a quaint little round basket out of pasteboard covered with flowered cretonne; the handle is well wrapped with ribbon and finished with a large bow. This is easily handed around a roomful of guests, or makes a festive centerpiece for living room table.

Miss B. B., Tully, N. Y.—Pop corn cakes make a nice Christmas treat from the farm and are so light that enough to supply a whole family can be sent by parcel post for a few cents.

Run freshly popped corn through a food chopper, using any knife, according to coarseness desired, until you have about four quarts of chopped corn. Place one quart of any good syrup or maple syrup on the stove, adding a small lump of butter to keep it from boiling over. Boil until it threads from the spoon. Take from fire and add 1 teaspoonful of vanilla. Stir it into corn thoroughly. Have buttered, shallow square tins ready and pour corn into them. Press down smoothly with a spoon, lay waxed paper over the top and place heavy weights, such as flatirons, over it until it hardens. Cut in squares or oblongs and wrap in waxed paper.

A safe and convenient way to send small glasses of jelly by mail is to wrap them in tissue paper and place in baking powder cans.

Mrs. E. G., Buchanan, Va.—Candy making is fascinating work and not so difficult as these directions may sound. Always choose a clear day, otherwise the moisture in the air may spoil results. Collect materials and tools before beginning. Never stir the sugar and water after the sugar has dissolved, and do not jar the boiling syrup, as these cause granulation.

FONDANT.—Place 2 cupfuls of granulated sugar (never more than 1 pound at a time), ½ cupful water and a pinch of cream of tartar or a few drops of lemon juice in a sauce pan—not tin, as it takes longer to cook it—and stir over the fire until sugar is dissolved. Use a wood n spatula or paddle whittled from tasteless wood, for stirring. Let boil six minutes, keeping the steam wiped from the sides of pan with a small cheesecloth wrung from cold water. Then test by plunging the fingers into the syrup after holding them in ice water until very cold, and immediately back into the water. There is no danger of burning if the fingers are thoroughly damp and chilled, and this is better than dipping out the syrup with a spoon. If the syrup on the fingers will form a soft ball in the water it has boiled enough. Remove carefully from the stove and pour quickly upon a large platter that has been lightly oiled or buttered. As soon as you can dip a finger to the middle of the syrup and find it warm, not hot, stir with the paddle until it becomes a white, creamy mass. When this begins to crumble knead it as you would bread until it becomes soft and smooth, which does not take long. Place in a bowl, cover with a damp cloth and proceed with the next pound. When all that is desired is done, pack it together in the bowl, cover with the cloth and stand in a cool, dry place until next day, when it may be divided, colored, flavored and shaped as one desires. If the candy hardens and kneading will not soften it, it has cooked too long; if it remains too soft, then it is cooked too little. The sugar is not wasted, but can be used for dipping or boiled to make other candy.

MARSHMALLOWS.—Put 6 tablespoonfuls of water over 2 tablespoonfuls granulated gelatine to soak while boiling 2 cupfuls granulated sugar with 6 tablespoon-

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fuls of water to the "soft ball" stage as in fondant. Pour in the gelatine and beat until thick and white. Flavor with vanilla or orange extract. Pour into a pan well powdered with pulverized sugar and spread to thickness of one inch. Sprinkle with powdered sugar and stand in cool place until morning. Cut in squares and pack in boxes after dipping edges in powdered sugar.

POTATO CREAMS.—To 2 cupfuls of sugar add 1 cupful cooked, finely mashed Irish potato, 1 teaspoonful of butter, ½ teaspoonful of salt, 2 squares grated chocolate or ½ cupful shredded cocoanut, or both. Cook in double boiler (to prevent burning) until a little dropped in cold water forms a ball instead of spreading and mixing in the water. Remove from fire, add ½ teaspoonful good strong vanilla and beat until it begins to crumble. Spread in buttered dish or form into balls, roll in cylinder shape and cut off rounds, etc.

With these receipts one can make almost an endless variety of most delicious candies for all purposes, and a dainty box lined with waxed paper filled with them, tied up in holiday attire, makes a most acceptable gift.

Many different ideas of combinations will present themselves to mind as one proceeds. I use the colorings found in gelatine packages and use both fresh and dried fruits, nuts of all kinds and some preserved fruits, in my fondant creams.

Mrs. T. M. S., Canton, N. C.—For decorating the center of the Christmas dinner table I make dough as for cookies, roll thin enough to be one-half inch thick when baked, cut in strips one-half inch wide and 10 inches long, being careful to put them in the pan so they will be very straight, and bake in a hot oven. I use 24 or 28 of these strips. When all are baked I dip them all over in a pan of white icing then build them into a pen, leaving an inch sticking out at the crossing at each corner; on the ends of each strip I stick a red candy cinnamon drop while the icing is still soft. In this pen I set a jar with a large bunch of holly, or if I haven't the holly I use a small Christmas tree decorated with small doughnuts dipped in white icing and speckled with red candy; also strings and balls of pop corn. Everybody admires this and it is very inexpensive.

For my best pies I use fruit mashed very fine, add a little cream, corn starch enough to thicken, vanilla flavoring, beat until light and foamy and bake in rich double crust.

I make candy for my children and it never makes them sick. I use the white of eggs beaten to a stiff froth and sweetened not too much; any kind of flavoring; sometimes a little cake coloring. Drop spoonfuls on a greased pan, press a nut or raisin on the top and bake just a minute in a hot oven; if baked slow or too long it will be tough.

Mrs. J. C. W., Homer, N. Y.—One of the most delicious of confections is made of nuts. Procure a generous supply of English walnuts, Brazil nuts, peanuts, hickorynuts and almonds, chop the meats but not fine enough to make them oily. Strew them thickly on a shallow pan well greased with butter. Mix with the meats ten finely chopped dates; a little candied lemon and orange peel can be added if desired. Make a syrup of 2 pounds of sugar and a cupful of water; boil until a drop hardens in cold water. Add a tablespoonful of lemon juice and pour over nuts. Mark into squares while soft.

A FRUIT DELICACY.—Mix together half a pound each of raisins, prunes, dates and figs, 1 pound of pecan meats and a few almonds and Brazil nuts. Put all through the food chopper, then add the juice of two oranges and knead well. Pack in cans and serve with the dessert or use as a filling for sandwiches.

FILLING FOR HOLIDAY COOKIES.—1 cupful chopped raisins (or dates), ½ cupful sugar, 1 teaspoonful flour, ½ cupful of water a little salt. Cook. Roll sugar cookies thin, put a spoonful of filling on one, cover with another; bake quickly.

B. R. G., Mansfield, Pa.—We usually prefer simple, inexpensive Christmas goodies. Our favorite cake, therefore, is the apple sauce cake, requiring 1 cupful sugar, 1½ cupfuls sweetened apple sauce, ½ cupful shortening, 2 teaspoonfuls of soda, 1 teaspoonful each of cloves and cinnamon, 2½ cupfuls of flour, 1 cupful raisins. We add some grated or finely chopped orange peel, bake in loaves or square tins, frost with white icing. Colored candies may be used to decorate the top after frosting, and you will have a wholesome, "Christmasy" cake.

For candy we buy some and make some. We make fudge and pinoche and sometimes other kinds. One pinoche contains 2 cupfuls brown sugar, 1 cupful white sugar, 1½ cupfuls milk, 1 teaspoonful butter, 1 cupful chopped hickorynut or walnut meats. Partly cook before adding nuts; boil until it spins a thread, remove from fire, add vanilla to flavor, beat until thick, pour into a buttered pan. Mark into squares before cold.

Last year for Christmas a wreath of evergreen and bittersweet berries was made in the center of the table on a centerpiece. A green glass dish having openwork around the top had sprigs of evergreen woven in and out through the openwork to form a wreath, the dish was filled with candy, dates and Malaga grapes, and placed in the center of the wreath on the table. It made a beautiful and fitting table decoration.

V. L. H., Sylvania, O.—Almond cakes usually grace our Christmas table. Work ¼ cupful of butter until creamy and add ½ cupful of sugar gradually, while beating constantly; then add the yolks of 4 eggs, beaten until lemon color and thick, ¼ cupful of milk and ⅞ cupful of flour mixed and sifted with 2 teaspoonfuls of baking powder. Beat thoroughly and fill small paper cases two-thirds full of the mixture, sprinkle with shredded almonds and powdered sugar; place in pan and bake in a moderate oven until delicately browned. Serve in paper cases.

For candy we often make cream mints. Put 1½ cupfuls of sugar, ¼ cupful of water and 2 tablespoonfuls corn syrup (using as much as clings to spoon) into a saucepan; stir until mixed, bring to boiling point and boil without stirring until syrup will spin a long thread when dropped from the tip of a spoon. This will be 238 degrees F. on a candy thermometer. Pour slowly on the beaten white of an egg and beat until the mixture will hold its shape. Flavor with 4 drops of oil of wintergreen or oil of peppermint, and color pink or green. Drop from the tip of a teaspoon, or force on waxed paper through a pastry bag and rose tube.

For Christmas dinner we have custard pie, using 2 eggs, 3 tablespoonfuls sugar, one-third teaspoonful salt, 1½ cupfuls of milk and a little grated nutmeg. Beat eggs slightly, add sugar, salt and milk. Line pie plate with crust, making edge higher and thicker than in center. Strain in the mixture slowly, adding grated nutmeg to taste. Bake in quick oven at first until edge of paste is set, then decrease heat and bake until custard is just set.

Watch Out for These Sharks

Herbert Hoover, United States Food Administrator, asks us to publish this statement:

"We have reports from various parts of the country of crooks, thieves and confidence operators who are going from house to house purporting to be authorized by the Food Administration and other departments of the Government to collect or commandeer foodstuffs for the Government or the Army.

"I wish to say emphatically that no department of the Government has or will ever make such demands on householders, and that all such people are petty frauds and should be held for the police. The Government agencies are investigating various cases and information is sought of all such persons by this department."

Can the Cockerels

Can the cockerels when it no longer pays to feed them, is the advice the United States Department of Agriculture is giving. Canning saves feed and puts on the pantry shelves materials for a chicken dinner when poultry is the highest in price. This is the method recommended:

Kill fowl, dress at once, cool; wash thoroughly, draw, then cut into convenient sections. Dip into cold water to insure cleanliness. Place in wire basket or cheesecloth and boil until meat can be removed from bones easily. Then remove from boiling liquid to separate the meat from bones. Take the meat off in as large sections as possible; pack hot meat into hot glass jars or enameled cans; fill jars with hot liquid after it has been concentrated one-half; add a level teaspoonful of salt per quart of meat, for seasoning; put rubbers and caps of jars into position, not tight. Cap and tip tin cans. Sterilize for the length of time according to the particular type of following outfit used: Water bath, home-made or commercial (quart jars), 3½ hours; water seal, 214 degrees, 3 hours; 5 pounds steam pressure, 2 hours, or 10 to 15 pounds steam pressure 1 hour.

Remove jars, tighten covers; invert to cool and test joints.

CAUTION.—Only the very best types of rubbers should be used.

What Our Farm Women Ask and Answer

As a result of the recent mince meat inquiry, Mrs. S. M. J., Louisiana, suggests the following way to make mince meat pies: One pound suet, 1 cupful of cooked lean meat, 4 apples, ½ pound citron, chop and add 1 pound seeded raisins, 1 pound currants, 2 cupfuls brown sugar, 1 pound Sultana raisins, rind and juice of 2 lemons, 2 tablespoonfuls mixed spices, and 1 teaspoonful of salt. Mix well and cook four hours in double boiler. I use a tin pail set inside of a stove kettle. To make pies in keeping with Christmas celebration use cradle-shaped patty tins. Line tins with crust, fill with mince meat, cover with crust, prick with a fork and bake a rich golden brown.

SWEET POTATO PIE.—Three pints boiled mashed sweet potato, 2 tablespoonfuls of flour, 4 eggs, 2 quarts of rich creamy milk, 1 pound of sugar and 1 teaspoonful nutmeg. Mix while warm for best results. This pie is almost as light as a charlotte russe.

For the benefit of Mrs. S. P. H., New Jersey, who recently asked how to cook the holiday goose, we pass on the way Mrs. M. D., Ohio, roasts one of these birds:

Dress the fowl the day before using. Salt it well inside and lay it on a platter to drain over night. The next morning wash it out nicely inside. I make a dressing the same as for turkey, a quart of bread crumbs, a large lump of butter, salt and pepper, and an onion, if preferred. Fill the body of goose, grease it all over with butter and dredge with flour. Place in a pan with a pint of water, baste well; let cook three hours. You will have something delicious.

Miss M. M., Pennsylvania., suggests that some one give a recipe for making soups without meat.

Our Fashions and Patterns

Full directions for making, as well as the quantity of material required, accompany each pattern. Patterns are perfect-fitting and seam allowing. When ordering write your name and address in full, state the number and size of each pattern you want, and send 10 cents for each. Address, FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILAD'A, PA.

8550.—Ladies' waist. Cut in sizes 36, 38, 40 and 42 inches bust measure. The pointed front closing has a simple 1-button fastening.

8526.—Misses' and girls' apron. Cut in sizes 2, 4, 6, 8, 10, 12, 14 and 16 years. This cover-all apron is a very convenient thing to slip on. The apron buttons in the back and can be worn with or without a belt.

8135.—Misses' and small women's one-piece dress. Cut in sizes 14, 16, 18 and 20 years. This is a one-piece dress.

8539.—Girls' one-piece dress. Cut in sizes 6, 8, 10, 12 and 14 years. The most interesting feature is the cleverly cut belt arrangement, which is cut in one piece with the saddle-bag pockets.

8537.—Ladies' one-piece apron. Cut in sizes 36, 40 and 44 inches bust measure. This apron is all in one piece so that it can be easily slipped on over the head.

8527.—Ladies' slip on waist. Cut in sizes 36, 38, 40 and 42 inches bust measure. The V-neck is very becoming on this waist.

8157.—Ladies' five-gored skirt. Cut in sizes 24, 26, 28, 30, 32 and 34 inches waist measure. The front is plain with a tailor stitched seam. The separate front belt with yoke effect is an excellent feature.

8547.—Children's rompers. Cut in sizes 1 and 2 years. The pants are all in one piece, with round pieces cut out for the legs. The front is cut like a bib, with a V-neck.

8551.—Ladies' two-gored skirt. Cut in sizes 24, 26, 28, 30 and 32 inches waist measure. The cornucopia pockets are very new and easy to make.

8520.—Ladies' dress. Cut in sizes 34, 36, 38, 40 and 42 inches bust measure. The skirt is in three pieces and is gathered to the loose waist line.

Our Latest Fashion Book

Owing to the number of departments in The Practical Farmer, we are unable to illustrate as many patterns as we would like, therefore, we publish for the benefit of our readers, four times a year, a quarterly fashion magazine called—"Every Woman Her Own Dressmaker"—which illustrates hundreds of the most practical styles for ladies, misses and children, and tells how to make all kinds of garments. The regular price of this book is 10 cents a copy, but we will send it postpaid for 5 cents, or if you will order it at the same time that a pattern is ordered we will send a copy of the latest at 2 cents postpaid. Address

FASHION DEPARTMENT, THE PRACTICAL FARMER, PHILADELPHIA, PA

Ideas from the Food Administration

CORN MEAL CRUST.—Grease a pie tin. Cover it with dry corn meal one-eighth of an inch thick, shaking it to scatter the corn meal. Fill with pie mixture and bake. This crust may be used with any semi-solid filling. Pastry may be omitted altogether and the custard baked as a pudding.

BAKED PUMPKIN.—Cut pumpkin into quarters. Allow two quarters of a large pumpkin for a family of six. Remove seeds but not peel. Place in a baking pan and bake until tender enough to pierce easily with a fork. Serve from the rind at the table with gravy.

PUMPKIN PONES.—2 cupfuls corn meal, 2 cupfuls stewed pumpkin, 1 teaspoonful salt, 6 tablespoonfuls syrup. Press pumpkin through a ricer. Mix with other ingredients and blend well. Mold with the hands into small pones and bake on greased biscuit tin until a rich brown, about 30 minutes. If too moist to mold well, add more corn meal.

GOLDEN PUMPKIN CHIPS.—2 pounds pumpkin, 2 cupfuls white syrup, ½ cupful lemon juice, 2 ounces ginger root. Cut a small sweet pumpkin into narrow strips. Remove peel and seeds and cut into thin slices. Arrange pumpkin in preserving kettle in flat layers. Pour over it the syrup and lemon juice, cover, and let stand 24 hours. Add the peel of one lemon shredded fine and the ginger root. Cook until pumpkin is tender, then pour it into an earthen jar. In a few days pour the syrup from the pumpkin. Boil to reduce and thicken it, and pour it hot over the pumpkin.

PUMPKIN PUDDING.—2 cupfuls stewed pumpkin, ½ cupful brown sugar, ½ cupful honey or maple syrup, 2 eggs, 1 tablespoonful flour, 1 teaspoonful cinnamon, ½ teaspoonful nutmeg, ⅛ teaspoonful cloves, ⅛ teaspoonful ginger, 1 teaspoonful vanilla, 1 pinch of salt, 2 cupfuls milk. Mix all ingredients and bake in greased pudding dish. Serve hot or cold.

INDIAN PUDDING.—5 cupfuls milk, 1-3 cupful corn meal, ½ cupful honey, 1 teaspoonful salt, 1 teaspoonful ginger. Cook milk and meal in double boiler 20 minutes. Add honey, salt and ginger. Pour into buttered pudding dish and bake two hours slowly. Serve with tart jelly or preserves.

CHEESE CUSTARD.—1½ cupfuls cottage cheese, ½ cupful maple syrup or honey, 2 tablespoonfuls milk, 3 eggs, 1 teaspoonful melted fat. Press the cheese through a colander; beat the eggs until light; add them with all the other ingredients to the cheese; mix until smooth. Place in a baking dish and bake in a moderate oven about 30 minutes.

SWEET POTATO BISCUIT.—4 boiled sweet potatoes, 2 eggs, 2 cupfuls milk, 2 cupfuls flour, 2 teaspoonfuls baking powder, 1 teaspoonful salt. Boil and put through a potato press 4 boiled sweet potatoes. Add milk and beaten eggs. Mix the dry ingredients and add to the batter. If necessary add more flour, enough to make soft dough. Roll out on board, cut out with biscuit cutter and bake in quick oven.

SWEET POTATO WAFFLES.—Mash through a press 2 boiled sweet potatoes. To 4 tablespoonfuls of the potato add 2 of melted fat, 2 of sugar, 1 quart of milk and ½ cupful of flour sifted with 1 teaspoonful baking powder, enough to make a soft batter. Beat well and add 2 well beaten eggs. Bake in hot greased waffle irons. Serve with butter and a very slight sprinkling of granulated sugar.

SWEET POTATO MUFFINS.—Put through the potato press 1 large sweet potato. Add 1 tablespoonful of fat and a little salt. Whip potato light and add ½ cupful of milk, 2 well beaten eggs and enough flour to make a soft batter, about 2 cupfuls, with 1 teaspoonful of baking powder sifted into it. Bake in greased muffin tins. Chicken hash makes a delightful accompaniment for these muffins or the potato biscuit.

DUCHESS SOUP.—½ onion, 2 tablespoonfuls fat, 2 tablespoonfuls flour, 3 cupfuls milk, ¾ cupful grated cheese, salt and pepper. Cook the onion in the fat until tender but not brown. Add the flour, then the milk gradually. Cook until smooth, add seasoning to taste. When ready to serve, put 1 tablespoonful of grated cheese in each plate and pour over it the hot soup.

CHEESE ROLL.—½ cupful rice, 1 cupful milk, 1 tablespoonful chopped onion and parsley, ¾ cupful grated cheese or cottage cheese, ½ cupful mashed potato, pepper and salt to taste. Cook the rice in the milk with the chopped onion and parsley, then add the mashed potato, pepper and salt. Form into a roll, brush with fat drippings and brown in oven.

This roll can be made up with many variations. Bread crumbs, beans and cheese may be combined, using enough of the liquor in which the beans were cooked to moisten the mixture so that it can be made into a roll. The beans should be mashed. Still another combination is made by substituting for the beans spinach or chard chopped fine.

CHEESE FONDUE.—1 cupful milk, 1 cupful bread crumbs, 1 cupful grated cheese, ½ teaspoonful salt. Boil the milk and pour over the bread crumbs, cover and let stand on the stove 15 minutes. Mix in the grated cheese and add salt and, if desired, a little red pepper or paprika. Pour into a greased baking dish and bake twenty minutes.

A richer dish may be made by adding two or three eggs. Add the well beaten yolks, then fold in the whites beaten until stiff. Bake 30 minutes in moderate oven and serve at once. This is really a souffle. Cooked rice may be used in place of the bread crumbs in making this dish.

CHEESE SAUCE.—1 cupful milk, 1 tablespoonful cottage cheese or ¼ cupful grated cheese, 2 tablespoonfuls flour, salt and pepper. Thicken the milk with the flour. Just before serving add the cheese, stirring until it is melted. This sauce may be used on hard-boiled eggs, toast, cabbage, cauliflower, macaroni or rice. Double the quantity of cheese when it is to be eaten with macaroni or rice.

APPLES AND DATES.—Steam until tender in a covered pan 1½ quarts of sliced apples, with ½ cupful of water, and the grated peel on 1 lemon. Add ½ cupful of chopped dates. Simmer the fruits together for 6 minutes. Serve cold.

The Editor's Book Review

Below are comments on some of the more recent books which have come to the editor's desk from their publishers. The modern farmer is a reading farmer of course, and like other business men we believe our farmers are building up libraries by the occasional purchase of books on farm subjects in which they are interested; in no other way can a farmer improve so rapidly or substantially in his chosen calling as by reading the best in farm papers and books and preserving for reference the written accounts of the experiences of others.

For our readers convenience, we will be pleased to furnish at the publishers prices any of the books reviewed below, or any other obtainable books on farming. Further, we will be glad to give suggestions regarding books on any given farm subject on receipt of request with stamp for reply.—The Editor.

PRINCIPLES AND PRACTICE OF MILK HYGIENE, by Louis A. Kline, Professor of Pharmacology and Veterinary Hygiene in the School of Veterinary Medicine, University of Pennsylvania, and dean of the faculty. J. B. Lippincott Co., Philadelphia. 321 pages, 41 illustrations, $3 net.

While this book was prepared primarily as a textbook for students it will be found of great value to anyone interested in the production of wholesome milk. Such chapters as Physiology of Milk Secretion, Bacteria in Milk, Influence of Disease Upon Milk, and Dairy Farm Inspection, show the detail into which the author has gone in presenting the facts and principles in the practice of milk hygiene.

FARM CONCRETE, by K. J. T. Ekblaw, associate member American Society Agricultural Engineers. The Macmillan Co., New York. 291 pages, illustrated. $1.60 net.

With the growing use of concrete as a building material on the farm the advantages of a book of this kind become greater each day. It presents in concise form the essential principles and requirements underlying concrete construction, and illustrates many examples of its use. The book is thoroughly practical, scientifically correct and of value to every land owner.

FIELD CROPS FOR THE COTTON BELT, by James Oscar Morgan, Professor of Agronomy in the Agricultural College of Texas. The Macmillan Co., New York. 442 pages, illustrated. $1.75 net.

This is another volume of the Rural Textbook Series appearing from time to time under the editorship of L. H. Bailey. It was written with the needs of the college student in view, but has much in it of value to farmers of the cotton belt. The first 150 pages are devoted to the cotton crop, then corn, oats, wheat, rye, barley, rice, the sorghums, sugar cane and peanuts are treated in ways which will fit them for Southern conditions.

AGRICULTURE AFTER THE WAR, by A. D. Hall. E. P. Dutton & Co., New York. 137 pages, 1.25 net.

While this book is written by an Englishman and deals largely with British conditions, it has much in it of interest to the American farmer. Although the present war is teaching many lessons, the dependence of everybody upon agriculture is being vividly realized and the past treatment accorded farmers is being carefully studied. Plans for future development are carefully worked out by the author and as our country becomes more and more involved in the world struggle we should be interested in them.

AROUND THE YEAR IN THE GARDEN, by Frederick Frye Rockwell. The Macmillan Co., New York. 341 pages, illustrated. $1.75 net.

For the person who has only spare time for gardening or one who is just starting to grow things for beauty and utility this book is especially well adapted. The text is divided into the weeks for each month and tells just the things to be done at that time. In this way work in the flower and vegetable garden is covered from start to finish and many valuable ideas are given on varieties, tools, storage and indoor gardening. It is written in a pleasing style and carries the reader from month to month without effort.

SOLDIERS' SPOKEN FRENCH, by Helene Cross. E. P. Dutton & Co., New York. 60c. net.

Here's a clever little handbook—waterproof covered, size to fit the pocket of a uniform—which many of our boys who are "going over" will find most useful as a short cut to the amount of French which it will be quite necessary for them to know. It is not a conventional "phrase book" but was compiled from a series of spoken lessons as given to New Zealand's soldiers. A neat and most acceptable little Christmas present for a soldier boy.

What *is* Your American Red Cross?

An all American, largely volunteer organization devoted to practical service to suffering mankind—in times of peace as in times of war.

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President Wilson heads it.
The War Department audits its accounts.
Pershing in France approves it.
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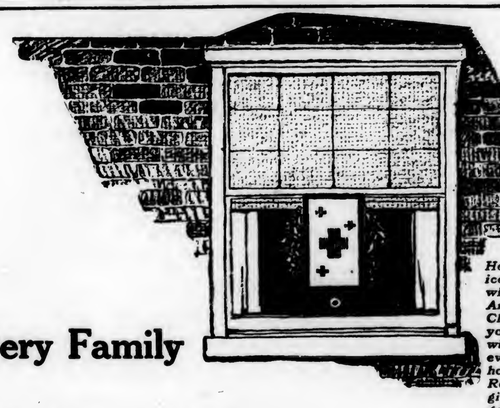
It is working for you.



Here is a Red Cross Service Flag that will be in the windows of millions of American homes this Christmas. It must be in yours—your service flag with a little cross for every member of your household. The nearest Red Cross chapter will give you your flag—it goes with every one dollar membership.

A Service Flag for every Family to make this a RED CROSS Christmas of Mercy

ON this, our country's first Christmas, in the most terrible of all wars, there should be a Red Cross Service Flag in millions—fifteen millions—of homes at least.

When your membership dollar is sent on its errand of mercy, a work of relief, which is the noblest thing in the world today, is aided.

Your Red Cross does not ask you at this time for large contributions.

It asks you to become part of it. *Your* Red Cross asks you to be one of ten million more Americans to give one dollar toward world relief.

The merest outline of Red Cross work could fill this whole magazine—go to your local Red Cross chapter—have your rightful share of service. The Christmas spirit *is* the Red Cross spirit. Let a greater Red Cross be America's Christmas gift to our boys and our Allies.

Join the Red Cross now—start your $1 on its errand of mercy. Be a member—it is your right

Ten Million New Members by Christmas

The Publishers of Practical Farmer have donated this space to the American Red Cross in the belief that its readers will heartily respond.

The New Pennsylvania Dog Law

The new dog law which was passed by the last session of the Pennsylvania Legislature goes into effect January 1, 1918. It is one of the best dog laws enacted by any state in the country and should do much to protect sheep and will also have a tendency to remove one of the greatest obstacles to sucessful sheep growing. The law is for the benefit of the farmer and it is the duty of every person who has the interests of the sheep industry at heart to see that it is enforced in his community. The present law repeals all previous laws and is the one to follow after January 1st. The More Sheep-More Wool Association has made a digest of the law which should be of interest.

MAIN PROVISIONS—LICENSE.

On or before the fifteenth of January of each year every owner of a dog six months old or over must obtain a license from the county treasurer or from a justice of the peace. The treasurer shall issue with each license a metal tag which must be worn by the dog at all times.

NIGHT STRAYING PROHIBITED.

The owner or keeper of every dog shall at all times between sunset and sunrise of each day, keep such dogs, either (a) confined within an enclosure from which it cannot escape, or (b) firmly secured by means of a collar and chain or other device so that it cannot stray beyond the premises on which it is secured, or (c) under the responsible control of some person, or when engaged in lawful hunting accompanied by an owner or handler.

FEMALE DOG.

It is unlawful for the owner or keeper of any female dog to permit such dog to go beyond the premises of such owner at any time she is in heat unless such dog is properly held in leash.

HARBORING.

It shall be unlawful for any person to harbor, or permit to remain about his premises any dog not having a license.

DESTRUCTION OF DOGS.

Any person may kill any dog which he sees in the act of pursuing, worrying or wounding any live stock, or attacking human beings whether or not such dog bears the license tag required by the provisions. There shall be no liability on such persons in damages or otherwise for such killing. Any unlicensed dog that enters any field shall constitute a private nuisance, and the owner or tenant of such field or their agent or servant may kill such dog while it is in the field without liability or responsibility of any nature for such killing.

It shall be the duty of every police officer to seize or detain any dog or dogs which bear a proper license tag and which are found running at large and unaccompanied by its owner or keeper. The owner of a dog so detained shall be notified to claim such dog within ten days, and shall pay all reasonable expense incurred by reason of its detention before the dog is returned. If after ten days from the giving of such notice such dog has not been claimed, such chief of police or his agent, constable or high constable shall dispose of such dog by sale, or by destruction in some humane manner. It shall be the duty of every police officer to kill every dog which does not bear a proper license tag. For failure to perform his duty under the provisions of this act such police officer shall be liable to a penalty of $2.00 for each offense. For the performance of this duty he shall be paid the sum of $1 for detaining a licensed dog and the sum of $1 for the killing of a dog.

DAMAGES. (LIVE STOCK.)

The term "live stock" shall include horses, stallions, colts, geldings, heifers, cows, calves, mules, jacks, jennets, burros, goats, kids, and swine. The term "poultry" shall include all domestic fowl.

Whenever any person sustains any loss or damage to any live stock our poultry by dogs, or live stock of any person is necessarily destroyed because of having been bitten by such dog, complaint for damages should be made in writing to the township auditor or to any justice of the peace, magistrate or alderman of the township, town, burough or city. On the establishment of such claim as provided for by this law, payment shall be made from the county funds to the proper person. If the owner of the dog or dogs doing the damage be known it shall be the duty of the county commissioner to notify such owners to kill said dog or dogs immediately. If said dog or dogs be killed by owner he shall be exempt from all further liabilities. Upon failure to kill said dog or dogs he shall be liable for the damages caused by the said dog or dogs.

ENFORCEMENT OF THE LAW.

The enforcement of this law lies with the Secretary of Agriculture, County Commissioners and Police Officers. The term police officer shall mean any person employed or elected by this Commonwealth or by a municipality, county, or township and whose duty it is to preserve peace or to make arrests or to enforce the law. The term includes game, fish, and forest wardens.

VIOLATION AND PENALTY.

Any person violating or failing or refusing to comply with any of the provisions of this act shall be guilty of a misdemeanor and, upon conviction shall be sentenced to pay a fine not exceeding $100.00 or to undergo an imprisonment not exceeding three months, at the discretion of the court.

REPEAL.

All other acts or parts of acts, general, local or special inconsistent with or supplied by this act are hereby repealed.

Will not every farmer write a personal letter to his United States Senators and Congressman demanding the legislation that will release these workers? It is no time to argue respecting the products to be barred; that can be determined in a Congressional committee, but every Member of Congress should be held responsible for such character of the legislation that one million workers will be released. This is no selfish movement, but one of patriotism. There is abundant labor for the production of all necessaries, and the man who writes a letter helping to secure this legislation performs a duty as a patriot. We have no right to expect our Members of Congress to run counter to the will of labor unions and interested manufacturers unless we support them through such a universal demand. Every agricultural paper is asked to carry this request, and the reader is urged to write the letters at once because it is personal letters that count, and also to ask his local bank to circulate petitions and to ask his Grange to do the same. The matter of securing an abundant supply of labor for the production of things necessary to the winning of the war lies in the hands of the millions of farmers who are always patriotic and who are in such a position that they can make their influence felt in this vital matter. Will you not write today demanding immediate action by our Congress?—Alva Agee.

This Year's Potato Crop

With an increase of 54.04 per cent. in the 1917 potato crop over the previous year, the United States has set the new high mark of 439,686,000 bushels. New York State is credited, by official records, with the highest state yield, which is 38,000,000 bushels, an increase of more than 69 per cent. over 1916. Iowa, with a potato crop of 13,110,000 bushels, however, shows 171 per cent. increase, the highest of any state. Other states which have this year more than doubled their 1916 potato production are Wisconsin, Ohio, Michigan and Minnesota.

An Abundant Labor Supply

[*Various solutions are being suggested for the farm labor problem, which in many places has become acute. The New Jersey Secretary of Agriculture, Alva Agee, has recently sent his ideas on this subject to the agricultural press and at his request we are glad to publish them with the hope that they will be given serious study.—Editor.*]

Our country has a sufficient supply of men and women to produce everything that is essential to the winning of this war. In times of prosperous peace millions of workers are engaged in the production of articles that supply no vital want of a people engaged in a gigantic struggle. A little later these workers will awaken to the fact that they are not making their lives count in this crisis and they will want to contribute their share, but our country needs their work now. The shortage in labor for the production of food, ships, munitions and other necessary things is due only to the failure of these workers to realize that labor devoted to things not essential is worse than wasted today. Russia has quit; Italy cannot do much in an aggressive way; there is a woefully weary element in France; the men, women and children of England, Canada and other countries of the English Empire are contributing their all, and our allies must be helped with abundant supplies of foods, munitions and men.

The farmers of this country are in a position to render a service of immense magnitude through assertion of their power as citizens. There are important influences at work to prevent Congress from placing a ban upon the production of luxuries, and it rests upon the individual farmers throughout every state of our Union to bring such influences to bear upon their Members of Congress that a supply of labor adequate to the production of all necessities should be provided without any delay by a national enactment, placing a ban upon the production of a sufficient number of luxuries to release immediately one million workers. This will be a blessing to the workers because they will turn to labor of which they may be proud when the war is won, and it will enable us to provide food and everything else necessary to the war, and that is the only thing that counts today.

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The Practical Farmer Live Stock and Dairy Section

More Swine—a Vital Need

W. H. TOMHAVE

It is well to plan and prepare an adequate supply of live stock for the coming year. There is a world shortage of meat and with the demand for the American and Allied armies the shortage will be greater in another year than at present unless every effort is put forth by the American farmer to produce just a few more animals for market. This not only holds true of hogs, but of sheep and cattle as well. It is more difficult, however, to appreciably increase the number of sheep and cattle within one year. With swine it is quite different. They have a larger number of offspring and can be grown ready for market at an earlier age than cattle or sheep. With the prevailing high price for all classes of hogs and a good price for all grains there is apt to be a tendency to sell brood sows that should be kept on the farm. Brood sows that have been kept long enough and failed to produce good litters or to properly rear them should be sold, but all good producing sows, even though they have some age, should be retained.

It is desirable to breed the sows during December so that the litters will not come too late. Early litters, if they can be properly cared for, will be ready for development on summer pasture, whereas the late ones can not make the maximum use of forage crops. The use of forage crops is of such importance that the little pigs can be given extra care to get them ready for early spring pasture.

The success in growing swine depends in a large measure upon the condition of the brood sow during the gestation period. The sows should be in fair condition at the time they are bred, and kept gaining during the gestation period. If they are thin at the time they are bred it is a good plan to have them gaining about one pound per day up to farrowing time. While it is objectionable to have brood sows too fat at farrowing time, there is greater danger of their being too thin and not receiving sufficient nourishment to properly develop the litters.

The feed for the brood sows should be of such character as will supply the proper nourishment and at the same time not become too expensive. Farm grown feeds should be used as far as possible. Corn will naturally form the greater part of the ration, but to get the best results it must be properly supplemented with protein feeds. The ration for the brod sow may contain considerable more bulk than for any other class of swine. If a good quality of alfalfa hay or clover hay is available, it may be fed in racks and will adequately supply the amount of protein required. Hay too coarse or of poor quality cannot be used. Digester tankage supplied at the rate of 1 pound to every 10 pounds of corn, makes a well balanced ration for a brood sow, but is improved by the addition of a little bulky feed. If tankage cannot be supplied and skim milk is available it will replace the tankage. If no other protein feeds are on hand oil meal may be used. The most important point to be kept in mind is that the protein is supplied in some form. The feeding of corn without a protein supplement not only results in the improper development of the litter but also requires a much greater amount to maintain a sow. Other protein supplements, such as wheat middlings, bran or oats may be used for brood sows but are too expensive for such purpose. A small amount of oats or bran may be fed to supply some bulk when all concentrate feeds are fed. They should never be fed in excess of 25 per cent. of the ration.

Brood sows must be kept in a vigorous and thrifty condition. This can be accomplished by feeding the sows some distance from the sleeping quarters. Such practice will necessitate the sows taking exercise which will keep them in good condition.

Sleeping quarters for brood sows do not need to be expensive or elaborate. Well bedded sheds of some kind will house them in good condition. It will be necessary to have a suitable farrowing pen in the spring, but such can usually be provided.

The number of swine grown can be materially increased if greater effort is made to save all strong pigs farrowed. The loss of one or two from each litter means a big reduction in the number developed as compared to the number farrowed. It not only means greater production, but also a lower cost of maintaining the brood sows.

It is important that every means available be brought into operation to produce more swine. Early spring gilts that are well developed should all be bred for spring farrowing. It may mean a few less hogs to market this fall, but the country can stand a shortage better today than a year from now. The country needs the hogs and most Eastern farms are in need of them for more successful farming.

Buttermilk is equal to skimmilk for feeding hogs, while whey is half as valuable. Whey, being low in protein, is not well suited for young pigs and should be fed to older animals.

Early Dawn Peep 2d. (See article page 439.)

The Present Milk Situation

The first annual meting of the Interstate Milk Producers' Association was held December 3rd, in the Philadelphia Bourse, when 300 dairymen gathered to hear reports and talk over conditions. The approval of the satisfactory way in which the present officials have conducted the business was shown by the re-election of all of them for another term. In the course of his remarks as president of the Association, Mr. Willits said:

"The growth of our membership has been commensurate with the time that could be expended during these busy times. Increasing care has been given to the importance of a full explanation of our aims and our methods. We have been anxious never to get members under false promises, as desirable as it is to have all our farmers join. Our members live in twenty-one counties of Pennsylvania, Maryland, Delaware and New Jersey, all the markets of which are directly influenced by Philadelphia. We have no desire to spread out in any direction beyond such limits, having joined the National Federation of Milk Producers, in order to affiliate ourselves with the producers' interests in other large centers. We have been able to adjust the wholesale price in all the cities and towns within our limits, whenever our co-operation has been sought.

"The first test of our strength came July 1st, when we assumed active charge of the sale of the milk of our members. We demanded and secured a substantial advance over the previous price. There was a further advance one month ago and I have this to say about the present situation. We are fully aware that the price prevailing for November is not enough for the present month, but we have been unable to boost the price higher on account of local conditions existing at the present time in the city, but we can assure you that there will be a substantial raise for the followin two months unless something unforeseen takes place. We have fixed a price, but think it best not to make it public now. We realize that the price is the first thing that we consider, but it is not all. It is very important that whatever price is set, that it can be secured for every one and that it be just and equitable to all.

"The question of test has caused much dissatisfaction, and I am sorry there is no time to discuss it here. It is sufficient to say that hereafter all prices are quoted by the Association for 3 per cent. milk with allowances above that for butterfat. This winter untested milk f. o. b. Philadelphia may approximate the 4 per cent. price, but that is because no test milk in winter on the Philadelphia market will average this test. In some other districts, all milk is sold now on the 3.6 basis, for that is agreed upon as the average test for that section. Our tester has discovered some instances where both producer and distributer have taken advantage of the opportunity to sell milk and to dishonestly buy it without test and this in itself is sufficient justification for us to insist on selling our product for just what it is worth, be it 3, 4 or 5 per cent. milk. The present variation is so arranged that the low test milk returns an extra premium for the butterfat alone, the butterfat in 3 per cent. being the highest priced fat at the present time. Of course, the reason for this is apparent. Whole milk and condensed milk furnish a market for the other valuable solids in milk that gives us our present market—80 per cent. above butter prices. The cream buyers compete for our milk by marketing their skimmilk as condensed, Italian cheese, etc."

Mr. Milo D. Campbell, president of the National Milk Producers' Federation, and possibly the man in this country who knows more about the milk situation than anybody else, through his work in Chicago and with the Food Administration in Washington, was at the meeting and offered many valuable suggestions. At the afternoon session he delivered an address, the main part of which is as follows:

WAR AND THE PRODUCTION OF MILK.

The one great call of this war is "team work." It will require co-operation such as the world has never before known, to meet the armies of the Teutons trained for thirty years as one man. A few days ago Lloyd George won the greatest triumph of his life, by organizing the Allies into a single fighting unit. A week ago, this Government found that its transportation service was deficient and wasteful. Thirty-eight railroads were ordered to forget the Sherman anti-trust law, to organize into a unit, into a combination and do business for the public as well as themselves. Their business today is in the hands of seven men, but with the Government standing over them with the brake lever in its own hand.

The Nation is not only requiring, but commanding the great industries to combine and organize, before they attempt to deal with the Government in matters of business.

The hundreds of condenseries of milk are combined into one association known as the "Canners' Association of the United States," and with this association the United States Government deals and buys its milk for the army. We find everywhere organized Government dealing with organized industry.

But let us go outside among the producers of wealth, the producers of food, among those who make it possible for any "pursuit of happiness" in this world, and we find yet in this country a spirit of feudalism that would continue to hold 30,000,000 of our people vassals to the lords over them.

Until two or three years ago, the six million milk producers whose families number between thirty and forty millions of our population knew little of organization and less about the cost of producing milk. They had been keeping cows, because one-half the milk produced by the herds of the country was used by the farmers and their families; because the other half was produced by "doing the chores" before six o'clock in the morning and after supper at night; by kids and hired men working overtime and by the good housewife caring for the milk, whose labor was not considered a thing of commercial value.

And so the best food that the world yet knows, was produced by the most enslaving drudgery of the farm, and for a price that would have sent the farmer

to the poorhouse had it not been for these uncounted services.

The world has not known until recently, that want of milk will decimate the population of the earth more rapidly than will the world war with all its devastation. The dairy cow is the foster mother of the human family, and if in a year or five years she should become so far extinct that the children of the world could not be fed by her, unnumbered generations to come would have to pay the penalty. * * * *

WAR TEACHES NEW LESSONS.

As a nation we are going to learn some important things from this war. Thirty years ago, when the anti-trust laws had their origin, we all believed that combinations of capital would prove to be the downfall of the nation unless prevented. The magic talisman "Regulation" had not yet been discovered.

For ten years last past we had not heard of anti-trust laws, until they were wheeled out a few weeks ago and used for intimidation or other un-American purpose upon milk producers' associations in various parts of the country.

By the Clayton Act, and by the Food Administration laws, farmers and farmers' organizations without capital stock, and operated not for profit, were particularly exempted. No Congressman or legislator ever dreamed that ambitious politicians would by any method undertake to distort the law so as to make it apply to farmers, who in the most open and harmless way were associating for their mutual co-operative benefit.

Six millions of farmers could not form a trust if they would. Their properties are separate and distinct and must continue to be. Not until the Socialist has destroyed the private ownership of our homes and farms, will there be any danger of an agrarian trust. Right now, the wisdom and beneficence of democracy for which more than half the world is fighting, will best be conserved by national unity. But national unity cannot be preserved or attained by gross discrimination against the agricultural classes of this country.

We recognize that these are not days for profiteering. The man, whether he be from farm or factory, whether he wear a dress suit or overalls, who wants to make an inordinate profit through the calamities of this war, is deserving of little better fate than the Hun who is shooting at our boys from the other side of the trenches.

Four months ago, representatives of the milk producers' associations of the country met at Washington, at the request of the Food Administration, and there offered the surplus milk of the country, beyond the farmers' own consumption, at prices sufficient to cover cost of production plus such reasonable profit as the Food Administration should find proper.

At the request of the Food Administration data was collected from every source possible bearing upon such cost. Experiment stations from the Atlantic to the Pacific, agricultural colleges, everywhere from which reliable information could be had were called upon.

Mr. Hoover appointed a disinterested committee of his own to examine and analyze this data. It was an eminent committee, and for weeks and months that committee has failed to report, while the whole country, consumers and producers have been waiting. There is no fair man, whether he comes from the consuming class or from the producing, but is willing to accord the producer of milk the actual cost of production plus a reasonable profit.

We do not criticise the delay, for we do not know the cause; but we do know what has resulted. The great consuming public has been made to feel that the demand of the farmer for more pay, has been unwarranted.

PRODUCTION COSTS INCREASE.

The true story has never reached the consumer. He only knows that of all the price advances made in food and clothing, that the milk producer is the one criminal who should be prosecuted. He does not know that while the price of his quart of milk has only advanced from sixty to seventy per cent., that the price of corn which was fed to produce that milk has advanced from 70 cents per bushel to $2.30 per bushel, or more than 200 per cent. advance.

That labor cost on the farm has doubled and every cost factor entering into milk production, has increased from 100 to 200 per cent. But as stated before, the war is to teach us some new lessons. Already $100,000,000,000 of property in this country is segregated into combines actual or understood.

Some of these combines are in the form of mere gentlemen's agreements, where at periodical dinners, prices and understandings are passed that become law. The farmer is too crude and has too little money for such elusive methods for evading the law. That takes high-priced lawyers.

A few attempts have been made to prosecute these great combines and we know the result. Standard Oil was broken up and gasoline sent up. It went from 7 cents a gallon to 23 cents. Railroads, tobacco and coal, beef, cotton and wool. Have you ever heard of one of their magnates spending a day in jail, for violating anti-trust laws?

When enacted, those laws were the best that we could devise, but they have passed forever. A new era awaits the American people, that of *regulation*. Do you believe that the powers conferred upon coal and food administrators for the period "during the war" will ever be allowed to die afterward?

In commerce, business and trade we will never again return for any length of time to conditions that obtained before the war. If prices can be controlled by government in time of war, how shall we prevent a hungry or frenzied majority from demanding the same in time of peace? No man hates the doctrines of radical socialism more than I do, but we may as well prepare for a continuance of some of the methods that have been found necessary in war.

ORGANIZATION IS NECESSARY.

The great combines in business and commerce are today more firmly established and more firmly fixed than is the constitution of our government. This does not mean that they will become the masters of their own destiny nor of ours, that they can defy the government or ride rough-shod over the people whom they must serve. It means that economics must come, that needless expenses must be eliminated, that labor must be treated fairly, and that profits must be reasonable.

This being true, the farmers of this country must organize or be lost in the shuffle. The truth has become an axiom, that the farmer is the only salesman in the world who has nothing to say about the price of his product. His price is made by the middleman, and the farmer can take that price or allow his product to spoil on his hands.

It is because of this condition, that the greatest gambling the world knows is carried on under the sheltering wings of the law, under so-called Board of Trade. If the farmer had a voice in making the price of his products, these unholy marts would be banished forever, and billions of dollars would be saved to producers and consumers, that is now stolen from them on the road from producer to the consumer.

But I may say to you that farmers are going to organize. The milk producers of the country are forming associations, and doing it everywhere. In the National Milk Producers' Federation, which is less than one year old, applications for membership are coming in faster than they can be acknowledged.

We are not law breakers, we do not defy existing law, we act wholly within the very letter of the law, and no man questions our purpose. We have a right to meet and talk over our problems, to consider cost of production, and under the federal laws of our land, to say what we ought to receive for our product. Under some state enactments, the restrictions are more binding, but nowhere can farmers be prohibited from co-operative organization. Nowhere can they be prevented from placing their milk in the hands of an agent to contract and sell for them to the best advantage he can obtain.

COMMISSIONS FAVOR ADVANCED PRICE.

Commissions are being appointed in various cities, upon which are representatives of producers, consumers and distributers. Hearings are being held to find the cost of production plus a reasonable profit.

The first one to report has been Detroit, which on Thanksgiving day reported that $3.35 per cwt. should be paid to farmers at their milk stations for the next four months for milk, testing 3.5. That consumers, in order to give to producers and distributers a fair price should pay 14 cents per quart or eight cents per pint for delivered milk.

New York and Chicago and Boston are all conducting investigations, and without doubt, when these are completed the results will have wide influence upon the price of milk in other parts of the country. And until conditions shall materially change.

The nation is confronted by some very serious problems in connection with the dairy business, problems that must not be overlooked. Had prices remained as they were one year ago, the dairy herds of the country would have vanished like the dew. Neither patriotism nor altruism requires any man to run his business at a loss. No man knowingly does this, no matter what may be the needs of the world. The government recognizes this eternal law.

The dairy cow is as necessary back of the trenches as is the soldier in the trenches. The dairy cow has been preserved to this nation and to the world by the organization of milk producers. * * *

This industry inventories not less than one and a half billions of dollars in cows, and as much more for buildings and equipment to care for them. The milk and milk products from these cows are worth at an average of three dollars per hundred for milk, the enormous sum of $2,640,000,000 annually. If we shall estimate that one-half is sold and the other half consumed by the producer, we shall find that 44,000,000,000 pounds of milk find its way to market annually. If the price of this milk shall rise or fall but one cent per hundred pounds, it means a variance to the producers of milk of more than four millions of dollars per year. It therefore is manifest to the milk producers of this country that if by co-operation they can make successful their demand for a reasonable price, the ends to be obtained will fully justify the effort and expense of organization. * * *

The world is moving along to starvation unless we, here in the United States, supply the food. Europe has fewer cows by forty millions than she had at the beginning of the war. She is crying for our milk products. Our cows are lessening in number and the hour calls for sacrifice, for milk products although at small profit.

You and I may not be able to fill the gaps in the trenches, but we can, without inordinate profit, continue to supply milk, to furnish food to a famishing world, while our sons fill the decimated ranks in the line of battle.

Feeding the Soft Corn

W. H. TOMHAVE.

There is an unusual amount of soft corn in nearly all fields this year. In many cases fully 25 to 50 per cent. is unmarketable and much of it will not keep well when put in the crib. This corn must be used in some way and there is no better way of handling it than through live stock. While live stock will not do as good on it as on well matured corn it can be used to advantage. It is important that this corn be fed as soon as possible and given to animals that are thin in condition. They will respond better to such corn in the early stages of the feeding period than during the later stages. This is due largely to the fact that the corn has not decomposed and is relished to a larger extent. It will have to be fed in larger amounts and oftener than well ripened corn. Frequently the mistake is made of feeding such corn in the same amounts as well matured corn, but much less dry matter is supplied on account of the high percentage of moisture. One reason why live stock does not do so well on soft corn during the later stages of the fattening period is because it is not supplied in sufficiently concentrated form for best results. On many farms much of the corn has been put into the silo, which is by all odds the best means of handling soft or frosted corn. If a considerable amount of the silage has been removed from the silo it is a good plan to refill the silo and save husking and cribbing. This may be done as late as December or January. If the stover is quite dry it will be necessary to add water to the cut corn so that it will be thoroughly saturated with moisture. This method of handling field corn should not be overlooked. It will not be necessary to feed all the material during the winter, but it may be kept until the following summer before it is fed.

If no silo can be had the crop may be fed direct from the field as bundle corn. The class of live stock to which to feed such corn will depend upon the method of farming followed and whether live stock must be purchased to which to feed the crop. If such is the case medium weight feeders in thin condition can best handle the crop. If fed to such cattle the corn must be supplemented with a concentrated protein feed such as oil meal or cotton seed meal. If the corn is fed as bundle corn it is important that it be left in the field in well made shocks as long as possible, or at least until the corn is fairly well dried out. To stack large amounts of the corn will have a tendency to mold and much of it will spoil.

If the corn is husked, a method that will be followed in many cases, it is well to sort as much as practical and put the sound corn in one crib while the soft is stored where it can be fed at once. The corn should be husked clean so far as possible. The presence of the husks, silk and any foreign material will have a tendency to retard air circulation in the corn crib. It is also a splendid practice to put a few ventilators in the crib or have some cross boards put in at different places to aid in the circulation of air. On farms where live stock is fed every year the soft corn question is not nearly as serious as on the grain farm. It again sets forth the advantage of the farmer who makes a regular practice of feeding live stock. He is prepared to meet the problem and will realize much more for his corn crop than will the man who is dependent upon the regular grain market for the sale of his crop. Live stock usually assures the best market for the corn crop and provides for a well balanced system of farming.

Sheep in Pennsylvania

With the new Pennsylvania dog law effective on the first of the year renewed interest has been created in sheep raising and numerous agencies are following the lead advocated eighteen months ago by Secretary of Agriculture Charles E. Patton, to bring about greater interest in the sheep industry.

Over a year ago Secretary Patton started a movement to secure more sheep in the state and so successful were his efforts that for the first time in ten years there was no decline in the sheep last year, but an actual increase of a few thousand sheep against a normal decline of about 25,000 yearly. Some of the plans which the Secretary had outlined for the farmers in furnishing them sheep did not materialize owing to the lack of funds, but thousands of farmers looked into the sheep proposition, found it was a paying side issue on their farms and secured small flocks of ewes which have been materially increased this year.

The new dog law will protect the sheep raiser and the response of county officials shows that they are eager to enforce the law and give the farmer every protection against stray dogs. Wool is selling at a record high price and many farmers who have available ground are preparing to place a few sheep on their farms.

The experience of one farmer who with an original investment of $100 for ewes shows the profit in sheep raising. In the spring nine ewes produced fourteen lambs which were sold for $150.84 and the wool brought an additional $44.50 or a total of $195.34 on the original investment of $100. The farmer still retains the nine ewes which are worth in the market today about $135.

How to Prevent Hog Tuberculosis

Hogs contract tuberculosis chiefly from dairy cows, which are also very subject to tuberculosis. The disease in a cow infects her milk system, her lungs, and her throat with tubercle bacilli—the germs which cause tuberculosis in men and animals. Some of these germs escape from the cow in her milk or in her droppings, or she may cough them out on feed or bedding. Hogs get the disease from the raw milk or droppings, or feed infected by a tuberculous cow. Pasteurized or cooked milk will not pass the disease from infected cows to other animals.

Therefore, to protect your hogs from tuberculosis and to make sure that your feed will be turned into meat instead of fertilizer, the Bureau of Animal Industry, Washington, D. C., recommends:

1. See that all milk, especially all skim milk from the creamery, is pasteurized or cooked before it is fed to the hogs.

2. Keep your hogs from following dairy cattle, unless the cattle are tuberculin tested. Keep them out of cow lots and barns, and keep dairy drainage out of hog lots. Hogs can follow steers without much danger.

3. Give your healthy hogs a chance to keep healthy. Give them clean, well-drained lots and plenty of fresh air, sunlight, and clean water. Shelter them in well-lighted and ventilated, sanitary hog houses. Keep the houses clean and use plenty of whitewash and disinfectants.

If there was tuberculosis in your swine last year, it is safest to get rid of that herd, especially the breeding animals, and raise clean hogs from fresh stock.

Two High Producing Cows

Steady production of fat has placed Sophie's Dolly Dimple 348582 in the front of her class in the state of Ohio. This Jersey heifer, starting on test at two years and three months of age, has won the title of Ohio champion junior 2-year-old, by producing 10,813.9 pounds of milk, containing 689.68 pounds of fat, or 862.1 pounds of 80 per cent. butter. Persistency was Dolly's chief asset in the making of this great record. Her start was ordinary, and at no time was her production for a single day in excess of what other heifers of the same age have produced. Sophie's Dolly Dimple, instead of having the usual decrease in production as her lactation grew, increased her yield until in the eighth, ninth and tenth months her maximum output of butterfat was reached. It is truly remarkable for a heifer with first calf to exceed the production of her first six months of lactation in her second six months, and this Dolly did by over 20 pounds.

Early Dawn Peep 2nd, a pure-bred Holstein cow, afforded one of the sensations at the National Dairy Show at Columbus, Ohio, by making a typical Holstein record of 33.52 pounds of butter in a week. While that is a good record it is not an exceptional one for a Holstein cow. It is unusual, however, in view of the conditions under which it was made. The strain of traveling to the show, the strange barn, the crowds of the curious and the excitement incident to the show were all serious obstacles to the making of a record. It is a wonderful record in view of these trying conditions. Her record for seven days at the show was 634 pounds of milk of 4.22 per cent. fat, yielding 33.52 pounds of butter. Early Dawn Peep 2nd last year made the semi-official record of 1287.72 pounds of butter in a year. She is owned by Peter A Small, of Chesterland, Ohio.

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MUTILATED PAGE

Protein Feeds for Pigs

Linseed oil meal is sometimes used as a supplement to corn in hog feeding, and when tankage or skimmilk cannot be obtained at a reasonable price this feed may become the cheapest carrier of protein. Tankage at $80 a ton proved cheaper than oil meal at $65 when fed with corn worth $1.68 a bushel in tests conducted at the Ohio Experiment Station.

Five pigs, weighing 141 pounds, were fed 12 weeks on corn alone; another lot, one part tankage with nine parts of corn; and a third lot, one part of linseed oil meal to five parts of corn. Those fed only corn gained 1½ pounds daily; those given corn and tankage, 2 pounds; and those supplied corn and oil meal, 1⅞ pounds.

The margin over the cost of the feed made by the pigs fed oil meal with corn was $19.64, when hogs sold for $15 a hundred; of those fed tankage and corn, $22.72; and of those given only corn, $10.62.

Younger pigs would make much slower gains than those obtained in this experiment if corn alone is fed. Even for long feeding periods with well developed hogs, corn is more profitable when supplemented with a small quantity of a feed rich in protein and mineral matter. Young pigs weighing 43 pounds gained only a third of a pound daily in one test when fed for 15 weeks on corn alone.

The Light in the Clearing

(Continued from page 422)

and the dooryard and the cows and the grindstone and Aunt Deel. The glow of the candles and the odor of ham and eggs drew me into the house. Wistfully I watched the great man as he ate his supper. I was always hungry those days. Mr. Wright asked me to have an egg, but I shook my head and said "No, thank you" with sublime self-denial. At the first hint from Aunt Deel I took my candle and went up to bed.

"I ain't afraid o' bears," I heard myself whispering as I undressed. I whispered a good deal as my imagination ran away into the near future.

Soon I blew out my candle and got into bed. The door was open at the foot of the stairs. I could see the light and hear them talking. It had been more than a year since Uncle Peabody had promised to take me into the wood fishing, but most of our joys were enriched by long anticipation filled with talk and fancy.

I lay planning my behavior in the woods. It was to be helpful and polite and generally designed to show that I could be a man among men. I lay a long time whispering over details. There was to be no crying, even if I did get hurt a little once in a while. Men never cried. Only babies cried. I could hear Mr. Wright talking about Bucktails and Hunkers below stairs and I could hear the peepers down in the marsh.

Peepers and men who talked politics were alike to me those days. They were beyond my understanding and generally put me to sleep—especially the peepers. In my childhood the peepers were the bells of dream-land calling me to rest. The sweet sound no sooner caught my ear than my thoughts began to steal away on tiptoe and in a moment the house of my brain was silent and deserted, and thereafter, for a time, only fairy feet came into it. So even those happy thoughts of a joyous holiday soon left me and I slept.

I was awakened by a cool, gentle hand on my brow. I opened my eyes and saw the homely and beloved face of Uncle Peabody smiling down at me. What a face it was! It welcomed me, always, at the gates of the morning and I saw it in the glow of the candle at night as I set out on my lonely, dreaded voyage into dream-land. Do you wonder that I stop a moment and wipe my glasses when I think of it?

"Hello, Bart!" said he. "It's to-morrer."

I sat up. The delicious odor of frying ham was in the air. The glow of the morning sunlight was on the meadows.

"Come on, ol' friend! By mighty! We're goin' to—" said Uncle Peabody.

Happy thoughts came rushing into my brain again. What a tumult! I leaped out of bed.

"I'll be ready in a minute, Uncle Peabody," I said as, yawning, I drew on my trousers.

"Don't tear yer socks," he cautioned as I lost patience with their unsympathetic behavior.

He helped me with my boots, which were rather tight, and I flew down-stairs with my coat half on and ran for the wash-basin just outside the kitchen door.

"Hello, Bart! If the fish don't bite to-day they ought to be ashamed o' themselves," said Mr. Wright, who stood in the dooryard in an old suit of clothes which belonged to Uncle Peabody.

The sun had just risen over the distant tree-tops and the dew in the meadow grass glowed like a net of silver and the air was chilly. The chores were done. Aunt Deel appeared in the open door as I was wiping my face and hands and said in her genial, company voice:

"Breakfast is ready."

Aunt Deel never shortened her words when company was there. Her respect was always properly divided between her guest and the English language.

How delicious were the ham, smoked in our own barrels, and the eggs fried in its fat and the baked potatoes and milk gravy and the buckwheat cakes and maple syrup, and how we ate of them! Two big pack baskets stood by the window filled with provisions and blankets, and the black bottom of Uncle Peabody's spider was on the top of one of them, with its handle reaching down into the depths of the basket. The musket and the powder horn had been taken down from the wall and the former leaned on the window-sill.

"If we see a deer we ain't goin' to let him bite us," said Uncle Peabody.

Aunt Deel kept nudging me under the table and giving me sharp looks to remind me of my manners, for now it seemed as if a time had come when eating was a necessary evil to be got through with as soon as possible. Even Uncle Peabody tapped his cup lightly with his teaspoon, a familiar signal of his by which he indicated that I was to put on the brakes.

To Aunt Deel men-folks were a careless, irresponsible and mischievous lot who had to be looked after all the time or there was no telling what would happen to them. She slipped some extra pairs of socks and a bottle of turpentine into the pack basket and told us what we were to do if we got wet feet or sore throats or stomach ache.

Aunt Deel kissed me lightly on the cheek with a look that seemed to say, "There, I've done it at last," and gave me a little poke with her hand (I remember thinking what an extravagant display of affection it was) and many cautions before I got into the wagon with Mr. Wright and my uncle. We drove up the hills and I heard little that the men said, for my thoughts were busy. We arrived at the cabin of Bill Seaver that stood on the river bank just above Rainbow Falls. Bill stood in his dooryard and greeted us with a loud "Hello, there!"

"Want to go fishin'?" Uncle Peabody called.

"You bet I do. Gosh! I ain't had no fun since I went to Joe Brown's funeral an' that day I enjoyed myself—damned if I didn't! Want to go up the river?

"We thought we'd go up to your camp and fish a day or two."

"All right! We'll hitch in the hosses. My wife'll take care of 'em 'til we git back. Say it looks as fishy as hell, don't it?"

"This is Mr. Silas Wright—the Comptroller," said Uncle Peabody.

"It is! Gosh almighty! I ought to have knowed it," said Bill Seaver, his tone and manner having changed like magic to those of awed respect. "I see ye in court one day years ago. If I'd knowed 'twas you I wouldn't 'a' swore as I did." The men began laughing and then he added: "Damned if I would!"

"It won't hurt me any—the boy is the one," said Mr. Wright as he took my hand and strolled up the river bank with me. I rather feared and dreaded those big roaring men like Bill Seaver.

The horses were hitched in and the canoes washed out. Then we all turned to and dug some angle-worms. The poles were brought—lines, hooks and sinkers were made ready and in an hour or so we were on our way up the river, Mr. Wright and I and Uncle Peabody being in one of the canoes, the latter working the paddle.

(*Continued next issue.*)

Money Saving Opportunities

We have made up a list of magazines and newspapers, which we offer in combination with The Practical Farmer at a reduced price for the two publications. We believe they are the best that can be selected for the farmer and his family. We cannot send sample copies of any of these publications; they must be secured from the office of each. These offers are only good for subscriptions in the United States, Hawaii and the Philippine Islands. The first column of figures gives the price of the publication named and the far column of figures the combined price of The Practical Farmer for three years and the publication named for one year.

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End of Volume